

TUESDAY, JULY 31

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 201

EMERGING TRENDS IN BIOLOGICAL ENGINEERING - PART 3

– Sponsored by ASE-08
Moderator: John March, Cornell University, Ithaca, NY

LOCATION: 140C

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801564	Biogenic marker detection for high-throughput phenotyping of <i>Aphanomyces</i> root rot resistance in pea Sindhuja Sankaran, Washington State University, Pullman, WA United States (Presenter: Sindhuja Sankaran) (Abirami Rajendran, Yu Ma, Afef Marzougui, Dennis Scott Mattinson, Rebecca J. McGee, Manuel Garcia-Perez, Sindhuja Sankaran)
09:50AM	1801531	Fingerprinting of cholesterol oxidation products in US basket by application of omics techniques Ilce Gabriela Medina Meza, Michigan State University, East Lansing, Michigan United States (Presenter: Lisaura Maldonado-Pereira) (Lisaura Maldonado Pereira, Matthew Schweiss, Ilce Gabriela Medina Meza)
10:05AM	1800140	Butyrate: a link between us and our microbiome Mohit Verma, Purdue University, West Lafayette, Indiana United States (Presenter: Mohit S. Verma) (Mohit S. Verma, Michael J. Fink, Gabriel L. Salmon, Nadine Fornelos, Takahiro E. Ohara, Stacy H. Ryu, Hera Vlamakis, Ramnik J. Xavier, Thaddeus S. Stappenbeck, George M. Whitesides)
10:20AM	1801647	Molecular dynamics simulations based in silico screening of antivirals targeting enzyme inhibition Aishwarya Mahadevan, Texas A&M University, College Station, Texas United States (Presenter: Aishwarya Mahadevan) (Aishwarya Mahadevan, Sandun Fernando)
10:35AM	1800273	One-Stop-Shop For Anti-Counterfeiting Technologies Aidan Fox, Michigan State University, East Lansing, Michigan United States (Presenter: Evangelyn Alocilja) (Aidan Fox, Evangelyn Alocilja)
10:50AM		BREAK
11:00AM	1801307	Cell to cell communication in harmful algal blooms using microhabitat platforms Nicole Wagner, Cornell University, Ithaca, NY United States (Presenter: Fangchen Liu) (Fangchen Liu, Jane Kown, Beum Jun Kim, Nicole Wagner, Jason Zarate, Beth Anher, Stephen Winans, Mingming Wu)
11:15AM	1801586	Controlling the Biophysical Culture Environment for Improved Differentiation of Human Mesenchymal Stem Cells Ki-Taek Lim, Kangwon National University, Chuncheon, Kangwon-Do Korea, South (Presenter: Ki-Taek Lim) (Ki-Taek Lim)
11:30AM	1801403	Specific production system for tailored rearing of house crickets as an alternative high quality protein source for food and feed Oliver Schlueter, Leibniz Inst. f. Agricult. Eng. Bioecon., Potsdam, Brandenburg Germany (Presenter: Oliver Schlueter) (Oliver Schlueter, Walter Polilli, Antje Froehling, Sara Bussler)
11:45AM	1801373	Plant growth in porous concrete hydroponic substrates Yasmeen Hitti, McGill University, Montreal, QC Canada (Presenter: Yasmeen Hitti) (Yasmeen Hitti)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 202

BEST PRACTICES IN UNDERGRADUATE PROGRAMMING

– Sponsored by EOPD-203
Moderator: Raj Raman, Iowa State University, Ames, IA

LOCATION: 140B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801005	A sophomore level Introduction to Engineering Design Course Norm Muzzy, Iowa State University, Ames, IA United States (Presenter: Norm Muzzy) (Norman Muzzy, Michelle Soupir, Steven Hoff)
09:50AM	1800558	Utilizing the MUSIC Model of Motivation in Intro to BSE to Increase Students Belonging & Identification Qualla Ketchum, Virginia Tech, Blacksburg, VA United States (Presenter: Qualla Ketchum) (Qualla Ketchum)
10:05AM	1801409	Inclination of High School Pupils to Studying Agricultural, Food, Biosystems and Bionic Areas of Engineering in Nigeria. Omotayo Osadipe, Federal University of Technology, Akure, Ondo Nigeria (Presenter: Omotayo Osadipe) (Omotayo Osadipe)
10:20AM		BREAK
10:30AM	1800014	Biology-Base Fluid Mechanics Course Kifle Gebremedhin, Cornell University, Ithaca, New York United States (Presenter: Kifle Gebremedhin) (Kifle Gebremedhin)
10:45AM	1800880	Using strengths-based leadership concepts to enhance the performance of capstone teams Gretchen Mosher, Iowa State University, Ames, Iowa United States (Presenter: Gretchen Mosher) (Steven D. Bell)
11:00AM	1800717	Development of ISOBUS Universal Terminal and Client ECUs for Agricultural Machinery Enkhbaatar Tumenjargal, Chonbuk National University, Jeonju, Jeollabuk-du Korea, South (Presenter: Enkhbaatar Tumenjargal) (Enkhbaatar Tumenjargal, Sodbileg Tsogt-Ochir, Munkhtamir Oyumaa, Enkhbat Batbayar, Shinebayar Munkhbayar, Chong Kil To, Woon Chul Ham)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 203

ADVANCES IN LIGNIN VALORIZATION FOR FUELS, CHEMICALS AND BIOPRODUCTS

– Sponsored by ES-220
Moderators: Jian Shi, University of Kentucky, Lexington, KY; Yi Zheng, Clemson University, Anderson, SC

LOCATION: 140D

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800770	Conversion of aromatics derived from lignin into lipids by oleaginous yeast Mark Blenner, Clemson University, Clemson, SC United States (Presenter: Mark Blenner) (Allison Yaguchi, Mike Spagnuolo, Erin Mihealsick, Alana Robinson, Mark Blenner)
09:50AM	1800865	Antimicrobial Properties of Lignin in Lignocellulosic Hydrogels and Lignin Derived Compounds Ryan Kalinoski, University of Kentucky, Lexington, Kentucky United States (Presenter: Ryan Kalinoski) (Ryan Kalinoski, Luke Dodge, Sue Nokes, Jian Shi)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

10:05AM	1801118	<p>Role of in-situ hydrogen donor in lignin valorization for renewable fuels and chemicals Vivek Patil, Auburn University, Auburn, AL United States (Presenter: Vivek Patil) (Vivek Patil, Sushil Adhikari, Saravanan R. Shanmugam, Hyungseok Nam, Rajdeep Shakya)</p>
10:20AM	1800082	<p>A Novel Platform for Bioupggrading of Lignin to Valuable Nutraceuticals and Pharmaceuticals Xiang Li, Clemson University, Central, South Carolina United States (Presenter: Xiang Li) (Xiang Li, Jian Shi, Lalitendu Das, Nishtanth Tharayil, Yi Zheng)</p>
10:35AM		BREAK
10:45AM	1801525	<p>Renewable lignin-based hydrogels and plastics Danielle Julie Carrier, University of Tennessee, Knoxville, TN United States (Presenter: Danielle Julie Carrier) (Danielle Julie Carrier, Kala Rajan, Jeffrey Mann, Stephen Chmely, Nicole Labbe, David Harper, Timothy Riels)</p>
11:00AM	1800686	<p>Lignin derived carbon-silicon nanocomposite materials for energy storage applications Wenqi Li, University of Kentucky, Lexington, KY United States (Presenter: Wenqi Li) (Wenqi Li, Yang-Tse Cheng, Jian Shi)</p>
11:15AM	1801215	<p>Submerged production of aryl alcohol oxidase using a genetically modified Aspergillus nidulans strain Enshi Liu, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Enshi Liu) (Enshi Liu, Asmaa Abdella, Fernando Segato, Mark Wilkins)</p>

11:00AM	1801369	<p>Pennycress feedstock logistics system for renewable jet fuel (RJF) production Seyed Hashem Mousavi Avval, Ohio State University, Wooster, Ohio United States (Presenter: Seyed Hashem Mousavi Avval) (Seyed Hashem Mousavi Avval, Asmita Khanal, Ajay Shah)</p>
11:15AM	1801108	<p>Biomass harvesting systems for herbaceous energy crops in the United States: A review Anil Koirala, Pennsylvania State University, University Park, PA United States (Presenter: Anil Koirala) (Anil Koirala, June Liu)</p>
11:30AM	1801106	<p>Assessing biomass potential of Pennsylvania from agriculture and forestry sector: A GIS based approach Anil Koirala, Pennsylvania State University, University Park, PA United States (Presenter: Anil Koirala) (Anil Koirala, June Liu)</p>
11:45AM	1801157	<p>Impact of Rainfall Volume on Lignocellulosic Feedstock Sierra Kubik-Hagedon, Iowa State University, Ames, Iowa United States (Presenter: Sierra Hagedon) (Matthew Darr, Keith Webster)</p>
12:00PM	1801539	<p>Investigating the Mechanics of Agricultural Residue Biomass-Water mixtures Flows while Hydro-transporting in Vertical Pipes Mahdi Vaezi, University of Alberta, Edmonton, Alberta Canada (Presenter: Mahdi Vaezi) (Mahdi Vaezi, Vaezi)</p>

Tuesday, July 31 - 9:30AM-12:00PM
SESSION 204

BIOMASS FEEDSTOCK SUPPLY LOGISTICS AND MODELING
– Sponsored by ES-220, ASE-12
Moderators: Igathinathane Cannayen, North Dakota State Univ, Fargo, ND; Jaya Shankar Tumuluru, Idaho National Laboratory, Idaho Falls, ID

LOCATION: 140E

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801686	Analysis of a module-based biomass collection system for corn stover and switchgrass Daniela Gonzales Jones, Duke University, Durham, North Carolina United States (Presenter: Daniela Jones) (Daniela Jones, Stephen Searcy)
09:50AM	1800854	Feedstock logistics for an integrated corn stover and energy crop based lignocellulosic biorefinery Ashish Manandhar, The Ohio State University, Columbus, Ohio United States (Presenter: Ashish Manandhar) (Ashish Manandhar, Ajay Shah)
10:05AM	1800950	Productivity Analysis of an Optimized Corn Stover Supply Chain a Multi-Year Review Keith Webster, Iowa State University, Ames, Iowa United States (Presenter: Keith Webster) (Matthew J. Darr)
10:20AM	1800235	Simulation Modeling Framework for Reliable Biomass Supply Chain Design under Operational Disruptions Bhavna Sharma, ORNL, Oak Ridge, TN United States (Presenter: Bhavna Sharma) (Bhavna Sharma, Robin Clark, Erin Webb)
10:35AM	1800954	Using Real-Time Data Systems for Decision Support in Biomass Harvest Supply Chains Keith Webster, Iowa State University, Ames, Iowa United States (Presenter: Keith Webster) (Matthew J. Darr Alex Shaw)
10:50AM		BREAK

Tuesday, July 31 - 9:30AM-12:00PM
SESSION 205

RENEWABLE ENERGY RESOURCES AND TECHNOLOGIES - PART 1 – Sponsored by ES-210
Moderator: Sarah Wu, University of Idaho, Moscow, ID

LOCATION: 140F

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801652	Integration of Solar Energy for Thermochemical Conversion Processes Sushil Adhikari, Auburn University, Auburn, AL United States (Presenter: Sushil Adhikari) (Sushil Adhikari, Saravanan Shanmugam)
09:50AM	1800920	Microwave-assisted Gasification of Solid Wastes for Electricity Generation Shiyu Liu, Univ. of Minnesota, Saint Paul, MN United States (Presenter: Shiyu Liu) (Roger Ruan, Shiyu Liu, Erik Anderson, Liangliang Fan, Yaning Zhang, Nan Zhou, Kuan Ding, Yanling Cheng, Yunpu Wang, Yuhuan Liu, Paul Chen)
10:05AM	1801346	National Woodchip Heating Fuel Technical Quality Standard Project James Dooley, Forest Concepts, LLC, Auburn, WA United States (Presenter: James Dooley) (James Dooley, Charles Niebling, Adam Sherman, David Bancroft)
10:20AM	1800813	Photovoltaic systems on dairy farms: An economic analysis Michael Breen, Cork Institute of Technology, Cork, Cork Ireland (Presenter: Michael Breen) (John Upton, Michael D Murphy)
10:35AM	1800646	Process Optimization of Campus Hybrid Solar Power System Idowu Adewumi, Federal College of Agriculture, Ibadan, Oyo State Nigeria (Presenter: Idowu Adewumi) (Idowu Adewumi, Babjide Adelekan)

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TUESDAY, JULY 31

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 206

STRATEGIES FOR SAFETY COMMUNICATION AND EDUCATION

– Sponsored by ESH-04/1, EOPD-205, EOPD-208
Moderator: Gretchen Mosher, Iowa State University, Ames, IA

LOCATION: 140G

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800862	Agricultural Safety Education: Formative Assessment of a Curriculum Integration Strategy Michael Pate, Penn State University, University Park, PA United States (Presenter: Michael L. Pate) (Michael L. Pate, Rebecca Lawver, Scott Smalley, Dustin Perry, Lorann Stallones, Alyx Shultz)
09:50AM	1800866	Development of an authentic assessment to evaluate grain dust mitigation programming Gretchen Mosher, Iowa State University, Ames, Iowa United States (Presenter: Gretchen Mosher) (Wesley T. Chang)
10:05AM	1800800	Poor Patronage of Antenatal Care (ANC) Services in West Africa: Case studies of Nigeria and Ghana Chisom Nwaigwe, University of Botswana, Gaborone, Botswana (Presenter: Chisom Nwaigwe) (Chisom Nwaigwe, Nwaigwe)
10:20AM	1801337	Safety in Agriculture for Youth: Maintaining a National Clearinghouse Aaron Yoder, University of Nebraska, Omaha, NE United States (Presenter: Aaron M. Yoder) (Aaron Yoder)
10:35AM		BREAK
10:45AM	1800790	Comparison of ergonomic performance evaluation in mechanized and traditional date stripping processes Hemantha Jayasuriya, SWAE, CAMS, Sultan Qaboos University, Al-Khoud, Oman (Presenter: Hemantha Jayasuriya) (Hemantha Jayasuriya, Alaa Al-Hinai, Seif Al Adawi, Adel Al Mahdouri)
11:00AM	1800167	Dynamic ROPS Test for Tractors over 6,000 kg Caleb Lindhorst, University of Nebraska, Lincoln, Nebraska United States (Presenter: Caleb Lindhorst) (Roger Hoy, Santosh Pitla, Michael Kocher)
11:15AM	1801813	Agricultural Security Monitoring and Safety Alert System: Application of Wireless Video-Alert Technology on the Farmstead Shawn Ehlers, Purdue University, West Lafayette, Indiana United States (Presenter: Shawn Ehlers) (Shawn Ehlers, Roger Tormoehlen, William Field)
11:30AM	1801356	Ride-On Mower Backover Accidents - A Continuing Source of Child Injury Kevin Severt, United States (Presenter: Kevin B. Severt PE) (Kevin Severt)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 207

BIG DATA AND DATA ANALYSIS FOR AGRICULTURAL APPLICATIONS PART 2

– Sponsored by ITSC-254, ITSC-217
Moderator: Mario Mondaca, University of Wisconsin, Madison, WI

LOCATION: 250A

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801180	Analytcs and Synthesis for mapping Well Yield Forecasts in the High Plains Aquifer Alessandro Amaranto, University of Nebraska Lincoln, Lincoln, Nebraska United States (Presenter: Alessandro Amaranto) (Alessandro Amaranto, Francisco Muonz-Arriola, Luis Joel Cantu Guerrero, Gerald Corzo, Dimitri Solomatine)
09:50AM	1800619	Data-driven financial cost/benefit tool for supplemental irrigation in humid regions: leveraging data to inform producer decisions Julie Shortridge, Virginia Tech, Blacksburg, VA United States (Presenter: Julie Shortridge) (Julie Shortridge, Mitchell Paoletti)
10:05AM	1800052	Discrimination of floral morphology with complex backgrounds in the farmland based on deep learning artifact Ping Lin, Yancheng Institute of Technology, Yancheng, Jiangsu China, People's Republic of (Presenter: Ping Lin) (Ping Lin, Yobgming Chen)
10:20AM	1800473	Estimation of field working days for maize harvesting in the United States and China Xiqiang Shen, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Xiqiang Shen) (Xiqiang Shen, Tao Lin)
10:35AM		BREAK
10:45AM	1800464	Use of Real Time Mesoscale Analysis (RTMA) gridded data to simulate disease risk in strawberry Clyde Fraisse, University of Florida, Gainesville, FL United States (Presenter: Clyde Fraisse) (Daniel Dantas, Fraisse)
11:00AM	1801685	Network Analysis of Illinois Grain Supply Chains: Optimal Grain Flow and Topological Perspective Luis Rodríguez, Univ. of Illinois at Urbana-Champaign, Urbana, IL United States (Presenter: Luis Rodríguez) (Wei-Ting Lioa, Luis Rodríguez)
11:15AM	1800081	An Optimized Adaptive Kalman Filtering Algorithm for Agricultural GPS Data Processing Yang Wang, Purdue University, West Lafayette, Indiana United States (Presenter: Yang Wang) (Andrew Balmos, James Krogmeier, Dennis Buckmaster)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 208

ADVANCED COMPUTATIONAL APPROACHES FOR SOLVING AGRICULTURAL & BIOLOGICAL ENGINEERING PROBLEMS-PART 1

– Sponsored by ITSC-217
Moderator: Nourredine Abdoulmoumine, University of Tennessee, Knoxville, TN

LOCATION: 141

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800314	Monitoring chicken heat stress using deep convolutional neural networks Chen-Yi Lin, China, Republic of (Taiwan) (Presenter: Chen-Yi Lin) (Chen-Yi Lin, Kuang-Wen Hsieh, Yan-Fu Kuo, Yao-Chuan Tsai)

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TUESDAY, JULY 31

09:50AM	1801483	Artificial Intelligence Models for Predicting Antibiotic-Resistance Transmission Risks in Livestock Operations Jacqueline Gibson, University of North Carolina, Chapel Hill, NC United States (Presenter: Jacqueline Gibson) (Jacqueline Gibson)
10:05AM	1800746	Optimizing the biomass grinding process using response surface methodology and hybrid genetic algorithm Jaya Shankar Tumuluru, Idaho National Laboratory, Idaho Falls, Idaho United States (Presenter: Jaya Shankar Tumuluru) (Jaya Shankar Tumuluru, Molly O'Brien, Neal Yancey, Craig Conner)
10:20AM	1801669	Estimation of peanut maturity using image analysis Wei-zhen Liang, Clemson university, Blackville, South Carolina United States (Presenter: Weizhen Liang) (Kendall R. Kirk, and James Thomas) ng Problems-Part 1
10:35AM	1800317	Detecting and Counting Soybean Aphids Using Convolutional Neural Network Kai-Yang Hsieh, National Taiwan University, China, Republic of (Taiwan) (Presenter: Kai-Yang Hsieh) (Kai-Yang Hsieh, Chuan-Kai Ho, Yan-Fu Kuo)
10:50AM		BREAK
11:00AM	1800610	The qualitative and quantitative assessment of tea quality based on E-nose, E-tongue and E-eye signals combining with chemometrics methods Min Xu, Zhejiang university, Hangzhou, Zhejiang province China, People's Republic of (Presenter: Min Xu) (Jun Wang)
11:15AM	1800543	Soft sensor modeling and implementation of fruit fly optimize general regression neural network based on OPC technology for biological variables Sun Lna, Suzhou, Jiangsu China, People's Republic of (Presenter: Huang Yonghong) (Sun Lina, Huang Yonghong, Wang Yinghai, Ding Shenping)
11:30AM	1801096	Radiated Noise Prediction of Gearbox Housing for Electric Forklift Woojin Chung, Seoul National University, Seoul, Korea, South (Presenter: Woo-Jin Chung) (Woo-Jin Chung, Young-Jun Park)

10:20AM	1801556	ABE-Stat: a palm sized, wireless, open-source potentiostat for high performance electrochemical analysis Daniel Jenkins, University of Hawaii, Honolulu, HI United States (Presenter: Daniel Jenkins) (Daniel Jenkins, Jose Reyes-de-Corcuera, Eric MacLamore, Soojin Jun)
10:35AM	1800184	DNA Lock n' Key Anti-Counterfeiting Technology Rebecca Jones, Michigan State University, East Lansing, Michigan United States (Presenter: Rebecca Jones) (Tess Cannon, Evangelyn Alocilja)
10:50AM		BREAK
11:00AM	1800990	Development of portable E-nose system for early diagnosis of insect-stressed tomato plants Shaoqing Cui, Ohio State University, Wooster, Ohio United States (Presenter: Shaoqing Cui) (Shaoqing Cui, Elvia Adriana, Alfaro Inocente, Heping Zhu, Nuris Acosta, Peter P. Ling, Harold M. Keener)
11:15PM	1800086	Visual Test for Rapid Screening of Infectious Diseases and Their Susceptibility to Antibiotics Abbigail Bugenske, Michigan State University, East Lansing, MI United States (Presenter: Emma Dester) (Abbigail Bugenske, Emma Dester, Evangelyn Alocilja)
11:30AM	1800374	Damage severity evaluation of <i>Platyclusus orientalis</i> infested by <i>Semanotus bifasciatus</i>(Motschulsky) using Electronic nose Wang Zhenhe, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Zhenhe Wang) (J. Wang)
11:45AM	1801186	Identification of the marked ages of rice wines by combining novel e-tongue based on nanocomposite modified electrodes and smartphone e-nose based on cloud platform Yanan Yang, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Yanan Yang) (Yanan Yang, Zhenbo Wei)
12:00PM	1800373	GO/Cu2O nanocomposite based QCM gas sensor for trimethylamine detection under low concentrations Wei Chen, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Wei Chen) (Wei Chen, Jun Wang)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 209

BIOSENSORS AND BIOELECTRONICS - PART 2

- Sponsored by ITSC-230, ITSC-348, ITSC-353
Moderator: Mark Riley, University of Nebraska-Lincoln, Lincoln, NE

LOCATION: 142B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800401	Gold Nanoparticle Synthesis and Development of Lateral Flow Biosensor for Dengue Detection Flora YRAD, University of San Carlos, Talamban, Cebu City, Philippines (Presenter: Flora M. Yrad) (Flora M. Yrad, Josephine M. Castanares, Evangelyn C. Alocilja)
09:50AM	1801649	Investigation on the interaction between gold-[iron-sulfur] complexes with NAD, NADP, FAD, PQQ and CoQ10 cofactors Aishwarya Mahadevan, Texas A&M University, College Station, Texas United States (Presenter: Aishwarya Mahadevan) (Aishwarya Mahadevan, Sandun Fernando)
10:05AM	1800282	Development of a Mid-Infrared Sensor for Measurement of Dissolved Carbon Monoxide during Syngas Fermentation Hasan Atiyeh, Oklahoma State University, Stillwater, OK United States (Presenter: Jie Dang) (Jie Dang, Hasan K. Atiyeh and Ning Wang)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 210

MACHINE VISION FOR PRECISION AGRICULTURE - PART 1

- Sponsored by ITSC-312, MS-54

Moderator: Daeun Choi, Pennsylvania State University, University Park, PA

LOCATION: 142A

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801254	Development of Image Recognition and Classification Algorithm for Tea Leaf Diseases Using Convolutional Neural Network Steven Lee, National Taiwan University, Taipei, China, Republic of (Taiwan) (Presenter: Sheng-Hung Lee) (Chia-Chang Wu, Shih-Fang Chen)
09:50AM	1800764	Digital image processing for classification and quantification of flowers for pollinators interaction Subhashree Navaneetha Srinivasagan, North Dakota State University, Fargo, North Dakota United States (Presenter: Subhashree Navaneetha Srinivasagan) (Subhashree Navaneetha Srinivasagan, Sunoj Shajahan, Igathinathane Cannayen, Jose Franco, Rachel Mallinger, Jarrad Prasifka, David Archer)
10:05AM	1801542	Predicting fruit yield using blossom detection Duke Bulanon, Northwest Nazarene University, Nampa, Idaho United States (Presenter: Tyler Hestand; Connor Nogales) (C. Nogales, B. Branden, J. Colwell, D.M. Bulanon, A. Stutz)

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TUESDAY, JULY 31

10:20AM	1800328	Development of an autonomous immature citrus yield mapping Hao Gan, University of Florida, Gainesville, Florida United States (Presenter: Hao Gan) (Hao Gan, Won Suk Lee, Victor Alchanatis, Amr Abd-Elrahman, Reza Ehsani, John Schueller)
10:35AM	1801193	Multiple object tracking-by-detection for apple fruit counting on a tree canopy Thomas Jarvinen, The Pennsylvania State University, State College, PA United States (Presenter: Thomas Jarvinen) (Thomas Jarvinen, Daeun Choi, Paul Heine-mann, Tara Baugher)
10:50AM		BREAK
11:00AM	1801573	Light interception measurement using digital image of plug tray pakchoi seedling in greenhouse Jingjin Zhang, Shanghai Jiao Tong University, Shanghai, Shanghai China, People's Republic of (Presenter: Jingjin Zhang) (Jingjin Zhang, Danfang Huang)
11:15AM	1801206	Lodged Sugarcane Assessment Using Digital Image Processing Md Abdul Momin, Bangladesh Agricultural Univ, My-mensingh, Bangladesh (Presenter: Md Abdul Momin) (Md Abdul Momin, Tony Grift, Alan Hansen)
11:30AM	1800218	A multi-sensor system for monitoring sour rot disease of wine grape Meina Zhang, Jiangsu Academic of Agricultural science, nanjing, jiangsu China, People's Republic of (Presenter: Meina Zhang) (Meina Zhang, Jianfeng Zhou, Xiaoan Lv, Xiuqing Fu, Shuiqin Zhou)

Tuesday, July 31 - 9:30AM-12:00PM SESSION 211

SPECTROSCOPIC SENSING AND IMAGING - PART 3

– Sponsored by

ITSC-348

Moderator: Lav Khot, Washington State Univer-

sity, Pullman, WA

LOCATION: 142C

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801107	Development of a field-based chlorophyll fluorescence imaging system and its application for nitrogen deficiency detection in oilseed rape Haiyong Weng, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Haiyong Weng) (Haiyong Weng, Weng)
09:50AM	1801192	Fast Detection of Sclerotinia Sclerotiorum on Oilseed Rape Using Low-Altitude Remote Sensing Technology Feng Cao, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Feng Cao) (Feng Cao, Fei Liu, Han Guo, Chu Zhang, Lei Feng, Jianyue Xu, Yong He)
10:05AM	1801462	Detection of early decay in peaches by structured-illumination reflectance imaging Ye Sun, Michigan State University, Okemos, MI United States (Presenter: Ye Sun) (Ye Sun)
10:20AM		BREAK
10:30AM	1800612	Measuring the optical properties of two-layer agricultural tissue with a sequential method from spatially-resolved diffuse reflectance, Part I: Analysis and simplification Aichen Wang, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Aichen Wang) (Aichen Wang, Renfu Lu, Lijuan Xie)
10:45AM	1800765	Assessment of seed yield and quality of winter oilseed rape using chlorophyll fluorescence parameters of pods Haixia Xu, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Haixia Xu) (Haixia Xu, Haiyan Cen, Zhihong Ma, Liang Wan, Weijun Zhou, Yong He)

11:00AM	1800536	Detection of Surface and Subsurface Defects of Apples using Structured-illumination reflectance imaging Yuzhen Lu, Michigan State University, East Lansing, Michigan United States (Presenter: Yuzhen Lu) (Renfu Lu)
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Tuesday, July 31 - 9:30AM-12:00PM SESSION 212

UAV FOR SENSING, IMAGING, AND CROP MATERIAL APPLICATION - PART 1

– Sponsored by ITSC-318, MS-58, MS-60

Moderator: Yu Jiang, University of Georgia, Athens, GA

LOCATION: 250B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800777	Yield Estimation Using Unmanned Aerial Vehicle Low-altitude Imaging for Dense Planting Cotton Field Kunlin Zou, China, People's Republic of (Presenter: Kunlin Zou) (Ruoyu Zhang, Yinglan Jiang, Kunlin Zou)
09:50AM	1800391	The Assessment of Accuracy and Stability for a UAS Sensor Platform as a Precision Agriculture Management Tool in Detecting and Mapping Geospatial Field Variability Charles Collins, North Carolina State University, Raleigh, NC United States (Presenter: Charles A. Collins) (Gary Roberson, Scott Hale)
10:05AM	1800123	Comparison of manned and unmanned aircraft for aerial imaging in agriculture Chenghai Yang, USDA-ARS, College Station, TX United States (Presenter: Chenghai Yang) (Chenghai Yang)
10:20AM	1801350	Machine vision method to count plants and to detect rows using unmanned aerial system images Dharani Suresh Babu, North Dakota State University, Fargo, North Dakota United States (Presenter: Dharani Suresh Babu) (Dharani Babu, Suresh Babu)
10:35AM	1801178	Real-time and Onboard Leaf Position Estimation using an Octorotor Controlled by Image Qualities Qiang Li, University of Central Florida, Orlando, Florida United States (Presenter: Andong Dai) (Qiang Li, Yunjun Xu)
10:50AM		BREAK
11:00AM	1801699	Tree Canopy Differentiation Using Instance-aware Semantic Segmentation Haoyu Niu, University of California, Merced, Merced, California United States (Presenter: Haoyu Niu) (Tiebiao Zhao, Haoyu Niu, Erick de la Rosa, David Doll, Dong Wang, YangQuan Chen)
11:15AM	1800706	Canopy Center and Plant Quantity Detection of Sugarcane Based on Aerial Visible Images Lijia Wang, Guangxi University, Nanning, Guangxi China, People's Republic of (Presenter: Ce Yang) (Lijia Wang, Xiuhua Li, Ce Wang, Yonghua Zhou, Ce Yang, Jiaoyan Ai)
11:30AM	1801514	Application of Unmanned Air Vehicles for Crop Health Monitoring and Management Sri Chandra Duddu, IIT Kharagpur, Kharagpur, West Bengal India (Presenter: Sri Chandra Duddu) (Sri Chandra Duddu)
11:45PM	1800729	Research on the Distance Detection of UAVs and Crops Based on Laser Radar Zheng Yongjun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Lv Haotun, Wang Hongchao, Liu Xin, Li Shixiong, Wu Gang, Zheng Yongjun)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 7:30AM-9:00AM

SESSION 213

LOCAL PRODUCTION AGRICULTURE 101 - INVITED SPEAKERS

– Sponsored by YPC
Moderator: Rebecca Kallal, Kuhn North America, Evansville, WI

LOCATION: 250C

This session will present Recovery Park Farms, a local business and social endeavor. This farm is an example of how urban agriculture has taken root in the city of Detroit. The Recovery Park organization believes that "by growing vibrant, healthy foods in blighted Detroit neighborhoods we can create quality jobs, accessible for people with barriers to traditional employment." Attend this session to learn more about the challenges and rewards that have resulted from this urban farming experiment.

07:30AM

Speakers will be from Recovery Park Farms

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 214

ADVANCES IN COTTON ENGINEERING - PART 2

– Sponsored by MS-23/7/3

Moderator: Bobby Hardin, Texas A&M University, College Station, TX

LOCATION: 251C

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801675	Directed Rx for variable rate nitrogen prescription in cotton Kendall Kirk, Clemson University, Blackville, SC United States (Presenter: Kendall Kirk) (Kendall Kirk, Hollens Free)
09:50AM	1801401	Cotton Round Module Kinematic Force Analysis Jeffrey Askey, United States (Presenter: Jeff Askey) (Jeffrey Askey, Matthew Darr)
10:05AM	1801119	Design and experiment of the key parts with cotton-stalk on baling combine harvester Wang Zhenwei, Research Institute for Agricultural, Nanjing, Jiangsu United States (Presenter: Wang Zhenwei) (Wang Zhenwei)
10:20AM	1800077	Plastic Contamination Sensor and Removal System Development Mathew Pelletier, USDA-ARS, Lubbock, TX United States (Presenter: Mathew G. Pelletier) (Mathew G. Pelletier, Derek P. Whitelock, Carlos B. Armijo, Paul A. Funk, Juan P. Garcia, Marcus R. Gray, Ivan Bader, Andres Tapia Carrillo, John D. Wanjura, Greg A. Holt)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 215

DATA MANAGEMENT FOR PRECISION AGRICULTURE

– Sponsored by MS-54

Moderator: Chenghai Yang, USDA ARS, College Station, TX

LOCATION: 252I

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800291	Analyzing Trends for Agricultural Decision Support System using Twitter data Sneha Jha, Purdue University, United States (Presenter: Sneha Jha) (Sneha Jha, Dharmendra Saraswat, Mark Ward)

Time	Paper #	Title/Author
09:50AM	1800307	Analyzing Trends in Production Agriculture in the State of Illinois Using Open Source Software Aaron Etienne, Purdue University, West Lafayette, Indiana United States (Presenter: Aaron Etienne) (Aaron Etienne, Dharmendra Saraswat, Mark Ward)
10:05AM	1800964	Design and validation of an electronic data logging systems (CAN Bus) for monitoring machinery performance and management- Planting application Firas Al-Aani, Iowa State University, Ames, Iowa United States (Presenter: Firas Salim Al-Aani) (Firas Salim Al-Aani, Mathew J. Darr, Levi John Powell, Benjamin Ross Covington)
10:20AM	1800499	Data exchange between agriculture and agricultural trade - special aspects in Germany Heinz Bernhardt, Technical University of Munich, Freising, Bavaria Germany (Presenter: Heinz Bernhardt) (Nina Zimmermann, Maximilian Treiber, Dirk Engelhardt)
10:35AM	1801479	eFields – Utilizing On-farm Research to Improve Farm Recommendations Elizabeth Hawkins, The Ohio State University, Columbus, Ohio United States (Presenter: Elizabeth Hawkins) (Elizabeth Hawkins, John Fulton, Richard Colley III, Kaylee Port, Andrew Klopfenstein, Scott Shearer)
10:50AM		BREAK
11:00AM	1801487	Estimation on Inquired Production Factors of Robot-based Automatic Farming with Cultivation Monitoring and Its Applicability to Plant Factory Paul Shin, Seoul National University, Pyeongchang, Gangwon Korea, South (Presenter: Paul Shin) (Paul Shin)
11:15AM	1801555	Finding Value in Digital Agriculture Technologies: A 2017 Case Study Richard Colley III, The Ohio State University, Columbus, Ohio United States (Presenter: Richard Colley III) (John Fulton, Nathan Douridas, Kaylee Port)
11:30AM	1801209	Harvesting front analysis for sugarcane yield mapping using GPS Md Abdul Momin, Bangladesh Agricultural University, Mymensingh, Bangladesh (Presenter: Md Abdul Momin) (Md Abdul Momin, Tony Grift, Alan Hansen)
11:45AM	1800311	Integration and Interaction of Canopy and Mechanical Parameters for Vibratory Harvesting of Apple Trees Xin Zhang, Washington State University, Prosser, Washington State United States (Presenter: Xin Zhang) (Xin Zhang, Long He, Yaqoob Majeed, Longsheng Fu, Manoj Karkee, Matthew D. Whiting, Qin Zhang)
12:00PM	1801610	Overview of Digital Technologies Offerings for North American Soybean Producers John Fulton, Ohio State University, Columbus, Ohio United States (Presenter: Jenna Lee) (Jenna Lee, John Fulton, Kaylee Port, Richard Colley III, Joe Luck, Mathew Darr, Scott Shearer)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 216

MACHINERY DATA & TASK OPTIMIZATION - PART 2

– Sponsored by MS-49

Moderator: Santosh Pitla, University of Nebraska-Lincoln, Lincoln, NE

LOCATION: 252B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800463	Power and Torque curves of an agricultural tractor diesel engine fueled with macaw palm oil biodiesel Ronald Barbosa, Federal Institute of Minas Gerais, Betim, Minas Gerais Brazil (Presenter: Ronald Leite Barbosa) (Carlos Eduardo Silva Volpato, Pedro Castro Neto, Diego Jose Carvalho Alonso)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

09:50AM	1800113	<p>Design and Analysis of ISO 11783 Task Controller's functionality in Server – Client ECU for Agricultural Vehicles Enkhbaatar Tumenjargal, Chonbuk National University, Jeonju, Jeollabuk-du Korea, South (Presenter: Woonchul Ham; Enkhbaatar Tumenjargal) (Enkhbat Batbayar, Munkhtamir Oyumaa, Sodbileg Tsogt-Ochir, Batkhishig Dorj, Enkhbaatar Tumenjargal, Chong Kil To, Woon Chul Ham)</p>
10:05AM	1800978	<p>Effects of working speeds of an agricultural tractor on a gear transmission Paul Lee, Chungnam National University, Daejeon, Korea, South (Presenter: Paul Lee) (Nam-Gyu Lee, Chang-Hyun Choi, Yong-Joo Kim)</p>
10:20AM	1801090	<p>Finite element analysis of radish harvesting part Yeon Jun Jung, Chung-Nam National University, Daejeon, Daejeon Korea, South (Presenter: yes, Yeon-Jun Jung) (Yeon-Jun Jung, Hyeon-Ho Jeon, Hee-Jong Jung, Chang-Hyun Choi, Yong-Joo Kim)</p>
10:35AM	1800981	<p>Simulation of hydraulic system of the rice transplanter with AMESim software Md Abu Ayub Siddique, Chungnam National University, Daejeon, Daejeon Korea, South (Presenter: Md Abu Ayub Siddique) (Md. Abu Ayub Siddique, Wan-Soo Kim, Seung-Yun Beak, Chang-Hyun Choi, Yong-Joo Kim)</p>

**Tuesday, July 31 - 9:30AM-12:00PM
SESSION 217**

ENGINEERING TECHNOLOGIES FOR FRUIT, VEGETABLES, AND OTHER SPECIALTY CROPS - PART 1 – Sponsored by MS-48, ITSC-353
Moderator: Manoj Karkee, Washington State University, Prosser, WA

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800349	Cutting mechanism and effect factors on maximum cutting force at different parts of sugarcane Luxin Xie, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Luxin Xie) (Luxin Xie, Xie)
09:50AM	1800177	Performance test of sugar beet harvesters – test standard and test results- Peter Schulze Lammers, University of Bonn, Bonn, NRW Germany (Presenter: Peter Schulze Lammers) (Peter Schulze Lammers)
10:05AM	1801458	A Test Platform for Modeling and Optimization of Fruit Removal System used in Mechanical Harvesting of Table Olive Trees Fuxi Shi, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Fuxi Shi) (Fuxi Shi, Arash, Applicant 3: reza Toudeshki, Applicant 3: ehsani, Mohammadmehdi Maharlooei, Shanjun Li)
10:20AM	1801417	Development and Experiment of a Monitoring System for Steam Treatment of Citrus Greening Andong Dai, University of Central Florida, Orlando, Florida United States (Presenter: Andong Dai) (Andong Dai, Kenneth Thompson, Yunjun Xu, Reza Ehsani, Yiannis Ampatzidis)
10:35AM		BREAK
10:45AM	1801162	Tests of a hot water soil injection system to treat HLB in citrus Saman Souri, University of Florida, Gainesville, Florida United States (Presenter: Reza Ehsani) (Saman Souri, Arash Toudeshki, Jaafar Jabbar, Reza Ehsani, John Schueller)

11:00AM	1800497	<p>Kinetics Simulation of the Crucial points on a Fruit Grading and Packing Line Xueping Ni, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Xueping Ni) (Xueping Ni, Huanyu Jiang, Le Wang, Weinan Shi)</p>
11:15AM	1800638	<p>Study on electrodes in high pulsed voltage field chamber for fruit and vegetable processing ZhenYu Liu, (Presenter: ZhenYu Liu) (YanBo Song, Xi-angDong Guo)</p>

**Tuesday, July 31 - 9:30AM-12:00PM
SESSION 218**

HANDLING, STORAGE, TRANSPORT, AND PROCESSING OF FORAGES – Sponsored by MS-23/7/2
Moderator: Josh Harmon, CNH Industrial, New Holland, PA

LOCATION: 331B

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800527	Twine Tension in High-Density Large Square Bales Kevin Shinnars, University of Wisconsin, Madison, WI United States (Presenter: Kevin Shinnars) (Joshua McAfee, Joshua Friede)
09:50AM	1800731	Parametric Design and Validation of Rope-biting Hook CAM of D-type Knotter Based on Differential Geometry zhang Anqi, Beijing, China, People's Republic of (Presenter: Zhang Anqi) (Zhang Anqi)
10:05AM	1800071	Development of Feed Blocks for Livestock Lope Tabil, University of Saskatchewan, Saskatoon, Saskatchewan Canada (Presenter: Lope G. Tabil) (M. Soleimani, B. Trebilcock)
10:20AM	1800639	Miscanthus Mechanical Conditioning Jude Liu, Penn State University, University Park, PA United States (Presenter: Jude Liu) (Gregory Fasick, June Liu)
10:35AM		BREAK
10:45AM	1801329	Designing corn stover bale storage yards to reduce potential fire growth and spread Erin Webb, Oak Ridge National Laboratory, Oak Ridge, Tennessee United States (Presenter: Erin Webb) (Erin Webb, Magen Shedden, Robin Clark, Robert Chambers, Keith Webster, Timothy Theiss)
11:00AM	1800529	Creating High-Density Bales through Recompressing Large-Square-Bales Josh McAfee, University of Wisconsin, Madison, WI United States (Presenter: Kevin Shinnars) (Josh McAfee, Kevin Sinners, Josh Friede)
11:15AM	1800523	Simulation of the Forage Harvest Cycle for Asset Allocation Brian Luck, University of Wisconsin-Madison, Madison, Wisconsin United States (Presenter: Brian Luck) (Brian Luck, Nathan Dudenhoeffer, Matthew Digman, Jessica Drewry)
11:30AM	1800534	Creating High-Density Bales with an Auger Baler Concept Dan Flick, University of Wisconsin, Madison, WI United States (Presenter: Daniel Flick) (Dan Flick, Kevin Shinnars, Cyrus Nigon)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 219

ADVANCEMENTS IN CN AND RUNOFF HYDROLOGY - PART 2

– Sponsored by NRES-21

Moderators: Ernest Tollner, University of Georgia, Athens, GA; Femeena Pandara Valappil, Purdue University, West Lafayette, IN

LOCATION: 331C

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800893	Evaluation of LiDAR for Engineering Design Alex Goodwin, University of Illinois (UIUC), Urbana, IL United States (Presenter: Alex Goodwin) (Rabin Bhattarai, Richard Cooke, Ruth Book)
09:50AM	1801257	Development of a geomorphologic-based continuous hydrologic model for agricultural basins Josept Revuelta, Purdue University, West Lafayette, Indiana United States (Presenter: Josept Revuelta) (Josept Revuelta, Bernard A. Engel, Dennis C. Flanagan)
10:05AM	1801048	Estimation of Daily Reservoir inflow from Water Level Observations Using a Hydrologic Model and a Multi-Objective Optimization Method Jung-Hun Song, TREC, University of Florida, Homestead, Florida United States (Presenter: Jung-Hun Song) (Jung-Hun Song, Younggu Her, Moon Seong Kang)
10:20AM	1800535	Hydrologic Parameterization of an Andean Páramo Catchment for Daily Runoff Prediction using the SWAT model. Fernando Jarrin, Texas A&M University, College Station, Texas United States (Presenter: Fernando Jarrin) (Rolando Celleri, Clyde Munster, Jaehak Jeong, Patricio Crespo)
10:35AM		BREAK
10:45AM	1801628	Sub-watershed Pritoritsation of Dhangaon Watershed for Management in Central India Using Arc-SWAT Priti Tiwari, FAE, Indira Gandhi Krishi Vishwavidyalay, Raipur, Chhattisgarh India (Presenter: Priti Tiwari) (Priti Tiwari, M. P. Shukla, Rituraj Tripathi, Prasad Daggupati, Ramesh Rudra)
11:00AM	1800574	The Impact of Climate Change on Watershed Management and Water Availability in Agricultural Production in Nigeria Jacob Akinyemi, Olabisi Onabanjo University, Ago Iwoye, Nigeria (Presenter: Jacob Akinyemi) (Jacob Akinyemi)
11:15AM	1801801	Evaluation of SCS and Snyders Synthetic Unit Hydrographs in Two Hydrographic Microbasins of Mexico Jorge Victor Prado Hernandez, Chapingo Autonomous University, Chapingo, Texcoco Mexico (Presenter: Jorge Victor Prado Hernandez) (Jorge Victor Pardo Hernandez, David Cristobal-Acevedo, Mauricio Carrillo-Garcia, Yessica Alejandra Gomez-Perez, Karla Quiroz-Flores, Mariana Sanchez-Roldan)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 220

APPLICATIONS TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS

– Sponsored by NRES-21, E-2050

Moderators: Rabi Mohtar, American University of Beirut, Texas A&M University; Amjad Assi, Texas A&M University, Tinley Park, IL

LOCATION: 332

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801355	Purification of Untreated Wastewater Using Magnetic Nanoparticles Anjini Chandra, Michigan State University, East Lansing, Michigan United States (Presenter: Anjini Chandra) (Anjini Chandra)
09:50AM	1800949	Determining planting date effects on seasonal water use of full and short season maize using SWAT in the southern Ogallala Aquifer region Gary Marek, USDA-ARS, Bushland, Tx United States (Presenter: Gary Marek) (Gary Marek, Yong Chen, Thomas Marek, Kevin Hefflin, Jed Moorhead, David Brauer, Prasanna Gowda)
10:05AM	1801543	Quantifying and Correcting for Clay Content Effects on Soil Water Measurement by Reflectometers Jasreman Singh, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Jasreman Singh) (Jasreman Singh, Tsz Him Lo, Daran Rudnick, Suat Irmak, Humberto Blanco)
10:20AM	1800600	The reinforcing effect of eggshell on the fatigue, ozone and aging resistance of guayule natural rubber composites compared with precipitated silica and carbon black Xianjie Ren, The Ohio State University, Wooster, Ohio United States (Presenter: Xianjie Ren) (Xianjie Ren, Katrina Cornish)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 221

HYDROLOGIC AND CLIMATE DATA: CHALLENGES AND OPPORTUNITIES

– Sponsored by

NRES-21

Moderators: Sushant Mehan, Purdue University, West Lafayette, IN; Rebecca Muenich, Arizona State University, Phoenix, AZ

LOCATION: 333

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800938	Uncertainty of water budget closure across the LTAR network Claire Baffaut, USDA-ARS, Columbia, Missouri United States (Presenter: Claire Baffaut) (Claire Baffaut, Erin Brooks, Fred Pierson, Eleonora Demaria, David Goodrich, Emile Elias, David Hoover, Mark A. Liebig, Daniel Moriasi, Daren Harmel, Douglas R Smith, Jane Okalebo, Thomas B. Moorman, Lindsey Yasarer, Stephen Hamilton, David Bosch, Kevin K)
09:50AM	1801023	Record extension approaches for streamflow time series from unregulated rivers in Canada: Comparison between conventional and wavelet transform-based methods Deasy Nalley, McGill University, Sainte-Anne-de-Belleve, Quebec Canada (Presenter: Deasy Nalley) (Deasy Nalley, Jan Adamowski, Bahaa Khalil, Asim Biswas)
10:05AM	1801070	Evaluation of NASA SMAP L4 soil moisture data in land use clusters using ground-based data Ameneh Tavakol, Kansas state university, Manhattan, KS United States (Presenter: Ameneh Tavakol) (Ameneh Tavakol, Vahid Rahmani)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

10:20AM	1801191	<p>Analysis of Long-term Trends in Climate Indices and Its Effect on Crop Yield in Illinois Shailendra Singh, University of Illinois, Urbana, Illinois United States (Presenter: Shailendra Singh) (Rabin Bhattarai)</p>
10:35AM	1801210	<p>Analysis of the long-term properties of climate in Illinois, USA Vaskar Dahal, University of Illinois Urbana-Champaign, Urbana, IL United States (Presenter: Vaskar Dahal) (Vaskar Dahal, Sudip Guatam, Rabin Bhattarai)</p>
10:50AM		BREAK
11:00AM	1801424	<p>Toward a nonstationary assessment of annual runoff generation in response to integrated climate and land-use changes at basin scale Manas Khan, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Manas Khan) (Manas Khan, Shantanaba Majumder, Francisco Munoz-Arriola)</p>
11:15AM	1801457	<p>Effects of land-use change on nutrient discharges in the Wabash Watershed Johann Vera, Purdue University, West Lafayette, Indiana United States (Presenter: Johann Vera) (Johann Vera, Bernard Engel, Indrajeet Chaubey)</p>
11:30AM	1800043	<p>Bias-Corrected Climate Data for Western Lake Erie Basin (WLEB): Implications for hydrologic and water quality modeling for 21st century using SWAT Sushant Mehan, Purdue University, West Lafayette, Indiana United States (Presenter: Sushant Mehan) (Sushant Mehan, Margaret W. Gitau)</p>
11:45AM	1801416	<p>Study of Spatial and Temporal Variability Pattern of Surface Soil Moisture in a Tropical Watershed Rabindra Kumar Panda, IIT Bhubaneswar, Bhubaneswar, Odisha India (Presenter: Rabindra Kumar Panda) (Gurjeet Singh, Rabindra Kumar Panda)</p>
12:00PM	1801080	<p>Quantification of predictive uncertainty in physically based hydrological models under data limited systems Jayapradhiga Mahalingam, Indian Institute of Technology Madras, Chennai, Tamilnadu India (Presenter: Jayapradhiga Mahalingam) (Raj Cibin, Sudheer KP)</p>

10:20AM	1800105	<p>Evaluation of the Effectiveness of Conservation Practices under Implementation Site Uncertainty A. Pouyan Nejadhashemi, Michigan State University, East Lansing, MI United States (Presenter: A. Pouyan Nejadhashemi) (A. Pouyan Nejadhashemi, Mohammad Abouali, Fariborz Daneshvar, Umesh Adhikari, Matthew R. Herman, Timothy J. Calappi)</p>
10:35AM	1800367	<p>Impacts of environmental stressors on nonpoint source pollution in intensively managed hydrological systems Alejandra Botero, University of Illinois, Urbana-Champaign, Illinois United States (Presenter: Alejandra Botero) (Alejandra Botero, Maria L. Chu)</p>
10:50AM		BREAK
11:00AM	1801245	<p>Perennial grasses in multifunctional buffers to benefit water quality and farm profitability Steph Herbstritt, Penn State, University Park, PA United States (Presenter: Steph Herbstritt) (Steph Herbstritt)</p>
11:15AM	1801434	<p>The importance of intra-management practice variability in sediment and phosphorus loss from agricultural fields Melissa Miller, Pennsylvania State University, University Park, PA United States (Presenter: Melissa D. Miller) (Melissa D. Miller, Lou S. Saporito, Anthony R. Buda, Heather E. Gall, Tamie L. Veith, Charles M. White, Clinton F. Williams, Kathryn J. Brasier, Peter J. A. Kleinman, John E. Watson)</p>
11:30AM	1800130	<p>Evaluation of BMPs impacts on surface and groundwater using a modeling approach Xiaojing Ni, Mississippi State University, Mississippi State, Mississippi United States (Presenter: Xiaojing Ni) (Prem B. Parajuli)</p>
11:45AM	1801062	<p>Predictive analytics for groundwater quality assessment: Nitrate nitrogen variation in Miyako Island, Japan M.K.N Kumari, Kagoshima University, Kagoshima-Shi, Kagoshima Japan (Presenter: M K N Kumari) (Kazuhiro Sakai, M H J P Gunarathna)</p>

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 222

BMPs AND WATER QUALITY: CONSERVATION SYSTEMS - PART 1

– Sponsored by NRES-22, NRES-225
Moderators: Margaret Gitau, Purdue University, West Lafayette, IN; Susant Mehan, Purdue University, West Lafayette, IN

LOCATION: 334

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800207	<p>A Review of Effectiveness of Agricultural BMPs on Nutrient Reduction in the Mississippi River Basin Yongping Yuan, USEPA-Office of Research and Development, Research Triangle Park, North Carolina United States (Presenter: Yongping Yuan) (Yongping Yuan, Katie Flahive)</p>
09:50AM	1800958	<p>A Field Level Modelling to Evaluate the Phosphorus Reduction in Priority Watersheds of Great Lakes, Ontario, Canada. Rituraj Shukla, University of Guelph, Guelph, Ontario Canada (Presenter: Rituraj Shukla) (Rituraj Shukla, Prasad Daggupati, Ramesh Rudra, Pradeep K. Goel, Shiv Prasher, Priti Tiwari)</p>
10:05AM	1800833	<p>Edge-of-field Monitoring of Conservation Practices in Northeast Arkansas Niroj Aryal, North Carolina A&T State University, Greensboro, NC United States (Presenter: Niroj Aryal) (Niroj Aryal, Michele Reba)</p>

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 223

WATERBORNE PATHOGENS AND EMERGING CONTAMINANTS

– Sponsored by NRES-224, NRES-21, NRES-22, NRES-28

Moderators: David Blersch, Auburn University, Auburn, AL; Michelle Soupir, Iowa State University, Ames, IA

LOCATION: 335

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801692	<p>Performance comparisons of the APEX and SWAT bacterial fate and transport module in the Little Cove Creek watershed Eunmi Hong, USDA-ARS, Beltsville, MD United States (Presenter: Eunmi Hong) (Eunmi Hong, Hong)</p>
09:50AM	1800961	<p>Drinking our Medicines? Fate and Transport of Emerging Contaminants at Penn State's "Living Filter" John Watson, The Pennsylvania State University, University Park, PA United States (Presenter: John Watson) (Clinton Williams, Charles Walker, Emily Woodward, Danielle Andrews-Brown, Alison Franklin, Heather Gall)</p>
10:05AM	1800970	<p>Occurrence and concentrations of pharmaceutical compounds in private wells in Central Pennsylvania Faith Kibuye, Pennsylvania State University, University Park, PA United States (Presenter: Faith Kibuye) (Faith A. Kibuye, Kyle R. Elkin, Heather E. Gall, Herschel A. Elliott, John E. Watson, and Bryan Swistock)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

10:20AM	1800516	<p>Fate and Transport of Three Antimicrobials in Laboratory Batch Partitioning Studies Using Beef Lagoon Runoff Water Katherine Woodward, Tufts University, Medford, Massachusetts United States (Presenter: Katherine Woodward) (Heldur Hakk, Sara Lupton, Bryan Woodbury, David M. Gute)</p>
10:35AM		BREAK
10:45AM	1800079	<p>Biological Threat Agents in the Environment: Detection, Fate, and Transport of Cryptosporidium parvum in Soils Christophe Darnault, Clemson University, United States (Presenter: Christophe Darnault) (Christophe Darnault, Zhenyang Peng, Chan Yu, Biting Li, David Powelson, Astrid Jacobson, Philippe Baveye)</p>
11:00AM	1801442	<p>Hidden Roles of Plant Exudates in Transformation of Organic Xenobiotics Khang Huynh, Michigan State University, East Lansing, Michigan United States (Presenter: Khang Huynh) (Khang Huynh, Dawn Reinhold)</p>
11:15AM	1800403	<p>Phytophthora species associated with plants in constructed wetlands and vegetated channels at a commercial ornamental plant nursery Natasha Bell, Clemson University, Clemson, SC United States (Presenter: Natasha Bell) (Daniel Hitchcock, Sarah White, Steven Jeffers)</p>
11:30AM	1800080	<p>Engineered Nanoparticles and the Environment: Fate, Transport, and Toxicity of Metal-Based Nanoparticles in Soil-Water-Plant System Christophe Darnault, Clemson University, United States (Presenter: Christophe Darnault) (Christophe Darnault, Biting Li, Linlin Mu, Chunyan Li, Erin Kinsey, Asra Hassan, Marcell Palmari, Gongde Chen, Wei-zhen Liang, Bradley Rauh, Barry Flinn, Haizhou Liu, Preston Snee, Stephen Kresovich)</p>

10:35AM	1800369	<p>Reliability of RZWQM model predictions: Model calibration for performance and robustness. Robert Anex, University of Wisconsin-Madison, Madison, Wisconsin United States (Presenter: Robert Anex) (Robert Anex, Lei Guo, Matthew Helmers)</p>
10:50AM		BREAK
11:00AM	1801585	<p>Simulating climate change impact on greenhouse gas emissions hydraulic cycle and crop production using RZWQM2 Qianjing Jiang, McGill University, Montreal, Quebec Canada (Presenter: Qianjing Jiang) (Qianjing Jiang)</p>
11:15AM	1801375	<p>Developing a SWAT model for St. Clair-Detroit River System watersheds for management scenario analysis Awoke Dagnew, University of Michigan, Ann Arbor, MI United States (Presenter: Awoke Dagnew) (Rebecca Muenich, Yu-Chen Wang, Don Scavia, Colleen Long)</p>
11:30AM	1801480	<p>Hydro-climatic simulation of Spring Creek Basin under dynamic CO2 atmospheric concentration Kpoti Gunn, ARS-USDA, State College, PA United States (Presenter: Kpoti Gunn) (Kpoti Gunn)</p>
11:45AM	1800238	<p>Surface runoff generation and ponding in a Mid-western tile-drained field Samaneh Saadat, Purdue University, West Lafayette, IN United States (Presenter: Samaneh Saadat) (Samaneh Saadat, Jane Frankenberger, Laura Bowling)</p>
12:00PM	1801588	<p>Comparison of RZWQM2 and DNDC model in simulating greenhouse gas emission, crop yield and subsurface drainage Qianjing Jiang, McGill University, Montreal, Quebec Canada (Presenter: Zhiming Qi) (Qianjing Jiang, Zhiming Qi, Chandra A. Madramootoo, Ward Smith, Naeem A. Abbasi, Tie-Quan Zhang)</p>

**Tuesday, July 31 - 9:30AM-12:00PM
SESSION 224**

ADVANCES IN DRAINAGE DESIGN, MONITORING AND MODELING

– Sponsored by NRES-23
Moderator: Vinayak Shedekar, Ohio State University, Columbus, OH

LOCATION: 336

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801464	<p>Determining Management Protocols for Automated Drainage/Sub-irrigation systems: A Modelling Study Lamyaa Negm, North Carolina State University, Raleigh, NC United States (Presenter: Lamyaa Negm) (Lamyaa Negm, Mohamed, Applicant 3: Chad Youssef, Applicant 3: Poole, George Chescheir, Seyedehsan Bagheri)</p>
09:50AM	1801767	<p>Water Quality Changing Trends in a Subsurface Drained and Subirrigated field Xinhua Jia, North Dakota State University, Fargo, ND United States (Presenter: Xinhua Jia) (Xinhua Jia)</p>
10:05AM	1800825	<p>Modeling sampling uncertainty within a tile network Kevin Wright, University of Illinois Urbana-Champaign, Urbana, Illinois United States (Presenter: Kevin Wright) (Kevin Wright, Richard Cooke, Paul Davidson)</p>
10:20AM	1801714	<p>Progress in the Development of a phosphorus model for RZWQM2 to simulate its loss through tile drainage Debasis Sadhukhan, McGill University, Montreal, Quebec Canada (Presenter: Debasis Sadhukhan) (Debasis Sadhukhan, Zhiming Qi, Tiequan Zhang, Chin Tan, Li-wang Ma)</p>

**Tuesday, July 31 - 9:30AM-12:00PM
SESSION 225**

ADVANCES IN IRRIGATION MANAGEMENT - PART 1

– Sponsored by NRES-244, NRES-24, NRES-241, NRES-245
Moderators: Kenneth Stone, USDA ARS, Florence, SC; Vasudha Sharma, Purdue University, West Lafayette, IN

LOCATION: 337

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800927	<p>Camelina versus Wheat: A Comparison of Crop Water-Use and Yield under Ten Levels of Irrigation in Arizona, USA Douglas Hunsaker, USDA-ARS, Maricopa, Arizona United States (Presenter: Douglas J. Hunsaker) (Kevin F. Bronson)</p>
09:50AM	1801219	<p>Comparison of peanut (Arachis hypogaea) growth under LED lights versus Natural light for purposes of defining daily water requirements. Gary Hawkins, University of Georgia, Watkinsville, GA United States (Presenter: Gary L. Hawkins) (Rachel W. Collier, Ernest (Bill) Tollner)</p>
10:05AM	1801163	<p>Impact of Irrigation Termination Date and Soil Moisture on Cotton Yield Saleh Taghvaeian, Oklahoma State University, Stillwater, OK United States (Presenter: Saleh Taghvaeian) (Saleh Taghvaeian, Randy Boman, Blessing Masasi, Sumon Datta, Jacob Stivers)</p>
10:20AM	1800848	<p>Simulating Soil Water Content, Evapotranspiration and Yield of Variably Irrigated Grain Sorghum using AquaCrop Blessing Masasi, Oklahoma State University, Stillwater, Oklahoma United States (Presenter: Blessing Masasi) (Blessing Masasi, Saleh Taghvaeian, Prasanna Gowda, Jason Warren, Gary Marek)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

10:35AM	1801276	<p>Scientific irrigation scheduling baseline research study in Columbia River basin Behnaz Molaei, Washington State University, Prosser, Washington United States (Presenter: Behnaz Molaei) (R. Troy Peters)</p>
BREAK		
11:00AM	1800126	<p>Effect of incorporating crop residues on soil water availability and bean yield under no-till and direct seeding agriculture, irrigated by center pivot Joao Carlos Cury Saad, FCA - UNESP, Sao Paulo, Brazil (Presenter: Joao Carlos Cury Saad) (Joao Carlos Cury Saad, Rodrigo Máximo Sánchez Román, Leonor Rodríguez-Sinobas, Joao Carlos Cury Saad)</p>
11:15AM	1800794	<p>Effect of Irrigation Schedule on Yield and Water Use Efficiency of Waterleaf Crop Precious Egbuikwem, Imo State Polytechnic, Umuagwo, Owerri, Imo Nigeria (Presenter: Precious Egbuikwem) (Precious Egbuikwem, Egbuikwem)</p>
11:30AM	1801036	<p>Comparison of nitrogen fertigation management strategies for center-pivot irrigated maize in the sub-humid area of China Jingjing Li, China Agriculture University, Beijing, China, People's Republic of (Presenter: Jingjing Li) (Wenjing Zhang, Jingjing Li, Yaojun Li, Haijun Yan, Derek Heeren)</p>
11:45AM	1800425	<p>Effect of soil-based managements on the spatial variability of maize growth and yield for a variable rate irrigation system Weixia Zhao, Beijing, China, People's Republic of (Presenter: Weixia Zhao) (Xiumei Li, Weixia Zhao, Jiusheng Li, Jun Wang)</p>

**Tuesday, July 31 - 9:30AM-12:00PM
SESSION 226**

APPLICATIONS OF REMOTE SENSING IN IRRIGATION MANAGEMENT – Sponsored by NRES-244, NRES-24, NRES-241, NRES-242
Moderators: Charles Hillyer, Texas A&M University, College Station, TX; Chadi Sayde, North Carolina State University, Raleigh, NC

LOCATION: 338

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800299	<p>Calibration of unmanned-aircraft-mounted short-wave multispectral camera system for use in evapotranspiration modeling Burdette Barker, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: J. Burdette Barker) (J. Burdette Barker, Mitchell S. Maguire, Christopher M. U. Neale, Wayne E. Woldt, Brian D. Wardlow, Bryan C. Gammon, Derek M. Heeren)</p>
09:50AM	1801595	<p>Feasibility of spectral vegetation indices for mapping water stress and improving agricultural water management Samuel Ihuoma, McGill University, Montreal, Quebec Canada (Presenter: Samuel Ihuoma) (Chandra A. Madramootoo)</p>
10:05AM	1801334	<p>Modeling Evapotranspiration using Multispectral and Thermal Infrared Imagery Acquired with a Low Altitude Unmanned Aerial System Mitch Maguire, University of Nebraska Lincoln, Lincoln, NE United States (Presenter: Mitch Maguire) (Mitch S. Maguire, Burdette Barker, Christopher M.U. Neale, Wayne E. Woldt, Andy Suyker)</p>
10:20AM	1801387	<p>Design of an In-Canopy Sprinkler Monitoring System for Center Pivot Irrigation Aaron Akin, Kansas State University, Manhattan, Kansas United States (Presenter: Aaron Akin) (Aaron Akin)</p>

10:35AM	1800591	<p>The Accuracy of Distribution Uniformity Test under Different Moving Irrigation Systems Abdelmoneim Mohamed, Washington State University, Prosser, Washington United States (Presenter: Abdelmoneim Mohamed) (R. Troy Peters, Abid Sarwar, Don McMoran)</p>
BREAK		
11:00AM	1800462	<p>Performance of Soil Moisture Sensors Under Field Conditions Sumon Datta, Oklahoma State University, Stillwater, Oklahoma United States (Presenter: Sumon Datta) (Sumon Datta, Saleh Taghvaeian)</p>
11:15AM	1800720	<p>Using canopy temperatures to evaluate water stress status in maize field in the Northeast China Haijun Liu, Beijing Normal University, Beijing, China, People's Republic of (Presenter: Haijun Liu) (Haijun Liu, Liwei Zhang, Yu Liu, Zhijun Zhang, Wangcheng Li, Junli Tan)</p>
11:30AM	1800423	<p>Diurnal dynamics of canopy temperature in management zones for a variable rate irrigation system Weixia Zhao, Beijing, China, People's Republic of (Presenter: Weixia Zhao) (Weixia Zhao, Jiusheng Li, Xiumei Li, Yanfeng Li)</p>
11:45AM	1800087	<p>Performance of Variable Rate Irrigation using Spatial Evapotranspiration Model with Satellite and Airborne Imagery Updated using Soil Moisture Content Measurements Sandeep Bhatti, University of Nebraska Lincoln, Lincoln, Nebraska United States (Presenter: Sandeep Bhatti) (Sandeep Bhatti, J. Burdette Barker, Derek M. Heeren, Christopher M. U. Neale, Daran R. Rudnick, Wayne E. Woldt, Yufeng Ge, Joe D. Luck, George Meyer, Francisco Munoz-Arriola, Alan Boldt, Mitch Maguire)</p>
12:00PM	1801513	<p>Remote sensing for detecting problem areas within fields and monitoring crop maturity status to develop Variable Rate Irrigation prescriptions for center pivots Anh Nguyen, University of Missouri, Columbia, Missouri United States (Presenter: Anh Nguyen) (Anh Nguyen, Allen Thompson, Kenneth Sudduth, Earl Vories)</p>

**Tuesday, July 31 - 9:30AM-12:00PM
SESSION 227**

SUSTAINABLE WATER USE IN AGRICULTURE: TRADITIONAL AND ALTERNATE WATER SOURCES

– Sponsored by NRES-26, NRES-262
Moderator: Gabriele Bonaiti, Texas A&M University, College Station, TX

LOCATION: 353

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800540	<p>Environmental monitoring of Suriliyar Basin, tamil Nadu, India- A case study. Kumar Veluswamy, AED-ACEI-TNAU, Madurai, Tamil Nadu India (Presenter: Kumar Veluswamy) (S. Chandran, M. Dhanasekarapandian, Kumar Veluswamy)</p>
09:50AM	1801667	<p>Investigating the Benefits and Impediments of Using Recycled Water for Crop Irrigation Masoud Negahban-Azar, University of Maryland, United States (Presenter: Adel Shirmohammadi) (Masoud Negahban-Azar, Adel Shirmohammadi)</p>
10:05AM	1801735	<p>Effect of Super Absorbent Polymers and Plantain Peel Biochar on Yield of Potato Grown with Wastewater Irrigation Jaskaran Dhiman, McGill University, Montreal, Quebec Canada (Presenter: Christopher Nzediegwu) (Jaskaran Dhiman, Shiv Prasher, Eman ElSayed, Christopher Nzediegwu, Ali Mawof)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

10:20AM	1800567	<p>Effects of Biochar on the Yield of Potatoes Grown with Wastewater Christopher Nzediegwu, McGill University, Montreal, Quebec Canada (Presenter: Christopher Nzediegwu) (Shiv Prasher, Eman Elsayed, Jaskaran Dhiman, Ali Mawof)</p>
10:35AM	1801567	<p>Effect of alternate irrigation with brackish and fresh water on soil salt accumulation, infiltration and maize growth Mingyi Huang, Texas A&M Agrilife Research Center, El Paso, Texas United States (Presenter: Mingyi huang) (Mingyi Huang, Zhanyu Zhang, Zhuping Sheng, Shalamu Abudu)</p>
10:50AM		BREAK
11:00AM	1801057	<p>Analysis of Hydrometric Conditions of the Four Aquifers of Tlaxcala State, for Irrigation Purposes Yessica A. Gomez-Perez, ITAT, San Felipe Ixtacuixtla, Tlaxcala Mexico (Presenter: Yessica A. Gomez Perez) (Mauricio Carrillo, Eliubi Echeverria, Jorge V. Prado, Humberto I. Navarro)</p>
11:15AM	1801222	<p>Bell Pepper and Jalapeno Yields as affected by various irrigation application rates Gary Hawkins, University of Georgia, Watkinsville, GA United States (Presenter: Gary L. Hawkins) (Rachel W. Collier)</p>
11:30AM	1800692	<p>Starch-based hydrogel as seed coating to improve corn's early growth under water shortage Vaibhav Pathak, Purdue University, West Lafayette, Indiana United States (Presenter: Vaibhav Pathak) (Vaibhav Pathak, Kingsly Ambrose)</p>
11:45AM	1801370	<p>Analysis of Performance of the Aquifer 1313 Actopan-Santiago De Anaya, Hidalgo Humberto Iván Navarro-Gómez, Universidad Autónoma Estado de Hidalgo, Mineral de la Reforma, Hidalgo Mexico (Presenter: Humberto Iván Navarro-Gómez) (Humberto Iván Navarro-Gómez, Emiliano Arrazola-Hernández, Yessica A. Gómez, Mauricio Carrillo)</p>

Tuesday, July 31 - 9:30AM-12:00PM
SESSION 228 ANAEROBIC DIGESTION – Sponsored by NRES-27, PRS-707
 Moderators: Doug Hamilton, Oklahoma State University, Stillwater, OK; Brenda Higgins, Auburn University, Auburn, AL

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1800133	<p>Anaerobic co-digestion of dairy manure and potato waste Lide Chen, University of Idaho, Twin Falls, Idaho United States (Presenter: Lide Chen) (Lide Chen, Gopi Kafle, Sarah (Xiao) Wu)</p>
09:50AM	1801290	<p>Anaerobic Digestion of Zoological Animal Waste: Using Lab Scale Anaerobic Digesters to Evaluate Operational Parameters of a Full Scale Dry Anaerobic Digester System Dana Kirk, Michigan State University, East Lansing, MI United States (Presenter: Dana Kirk) (Dana Kirk, Gina Haylett, Wei Liao)</p>
10:05AM	1800925	<p>Theoretical Modeling and Experimental Study on Volatile Fatty Acid Production from Almond Hull through Anaerobic Fermentation Ke Wang, University of California, Davis, Davis, CA United States (Presenter: Ke Wang) (Ke Wang, Abdolhossein Edalati, Ruihong Zhang)</p>

10:20AM	1800270	<p>Application of Decision Making Tools in Feedstock Development for Anaerobic Co-digestion: A Case Study of the Detroit Water Resource Recovery Facility Umesh Adhikari, Michigan State University, East Lansing, Michigan United States (Presenter: Umesh Adhikari) (Umesh Adhikari, Steven Safferman, Wendy Barrott, Andrea Busch)</p>
10:35AM		BREAK
10:45AM	1801217	<p>Partial Mixing System to Improve Performance of Anaerobic Sequencing Batch Reactors Douglas Hamilton, Oklahoma State University, Stillwater, Oklahoma United States (Presenter: Douglas Hamilton) (Douglas Hamilton)</p>
11:00AM	1800221	<p>Recovering Inhibited Anaerobic Digestion by Vacuum Thermal Stripping and Recirculation of Digestate Wendong Tao, SUNY College of Environ. Sci. & Forestry, Syracuse, New York United States (Presenter: Wendong Tao) (Wendong Tao, Jonathan Masih-Das, Fred Agyeman)</p>
11:15AM	1800936	<p>Upgrading effluent from anaerobic digestion through hydrothermal carbonization Zhifang Cui, The Ohio State University, Wooster, Ohio United States (Presenter: Ajay Shah) (Zhifang Cui, Ajay Shah)</p>
11:30AM	1800511	<p>Measurement and removal of siloxanes in biogas Liangcheng Yang, Illinois State University, Normal, IL United States (Presenter: Liangcheng Yang) (Liangcheng Yang)</p>

Tuesday, July 31 - 9:30AM-12:00PM
SESSION 229 NUTRIENT REMOVAL, RECOVERY AND RECYCLE - PART 2 – Sponsored by NRES-28
 Moderator: Lordwyn Jeyakumar, Agriculture & Agri-Food Canada, Allabad, Uttar Pradesh, India; Bahareh Hassanpour, Cornell University, Ithica, NY

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801532	<p>Nutrient and Water Transport and Uptake in Corn Production Systems: A Field Scale Assessment in Southern Georgia, US Sandra M. Guzman, Auburn University, Auburn, Alabama United States (Presenter: Sandra M. Guzman) (Sandra M. Guzman, Ritesh Karki, Puneet Srivastava)</p>
09:50AM	1800366	<p>Agricultural management factors that determine N fate and transport Congyu Hou, UIUC, Urbana, IL United States (Presenter: Congyu Hou) (Congyu Hou, Maria Chu)</p>
10:05AM	1800468	<p>Multi-objective and multi-site calibration of APEX/NTT at 19 fields across Northwest Ohio Tian Guo, Heidelberg University, Tiffin, OH United States (Presenter: Tian Guo) (Tian Guo, Remegio Confesor, Ali Saleh, Kevin King)</p>
10:20AM	1801260	<p>DRAINMOD-P, a model for simulating phosphorus dynamics in artificially drained croplands Manal Askar, Department of Bio & Ag Engineering, NCSU, Raleigh, NC United States (Presenter: Manal Askar) (Manal Askar, Mohamed Youssef, George Chescheir, Dean Hesterberg, Aziz Amoozegar, Wayne Skaggs)</p>
10:35AM	1801161	<p>Using cerium salt as an economical precipitant for complete phosphorus recovery and effective dewatering of anaerobic digestate Dian Zhang, Virginia Tech, Manassas, Virginia United States (Presenter: Dian Zhang) (Dian Zhang, Zhi-Wu Wang)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 230

ECOLOGICAL ENGINEERING APPLICATIONS

– Sponsored by NRES-28
Moderators: Trisha Moore, Kansas State University, Manhattan, KS; Sara McMillan, Purdue University, West Lafayette, IN

LOCATION: 356

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801772	Flexible morpho menelaus-based surface-enhanced Raman spectroscopy (SERS) for rapid and simultaneous detection of pesticides residues Abdelrahman Elbaz, Southeast University, Nanjing, Jiangsu China, People's Republic of (Presenter: Abdelrahman Elbaz) (Abdelrahman Elbaz)
09:50AM	1800844	Estrogen occurrence and persistence in vernal pools impacted by wastewater irrigation practices Odette Mina, The Pennsylvania State University, State College, PA United States (Presenter: Odette Mina) (Odette Mina, Heather Gall, Hershel Elliott, John Watson, Michael Mashtare, Tracy Langkilde, Jeremy Harper, Elizabeth Boyer)
10:05AM	1800685	A Laboratory Investigation on the Impacts of Selected Hydrologic Variables on Pesticide Removal by Constructed Wetlands John McMaine, United States (Presenter: John McMaine) (John McMaine, Jason Vogel, Jason Belden)
10:20AM	1801623	Estimating flow through rock weirs for use in ecological engineering design Theresa Thompson, Virginia Tech, Blacksburg, VA United States (Presenter: Theresa Thompson) (Suraye Solis, Theresa Thompson)
10:35AM	1800690	Biologically Dominated Submerged Breakwaters for Shoreline Stabilization and Habitat Restoration Matthew Campbell, North Carolina State University, Raleigh, NC United States (Presenter: Matthew Campbell) (Matthew Campbell, Steve Hall)
10:50AM		BREAK
11:00AM	1801553	Evaluation of lighting preference to enhance trap catch of Asian Citrus Psyllid and Coconut Rhinoceros Beetle Daniel Jenkins, University of Hawaii, Honolulu, HI United States (Presenter: Daniel Jenkins) (Daniel Jenkins, Daniel Truong, Damon Crook, Michael Melzer, Chandrika Ramadugu, James Snyder)
11:15AM	1801554	Evaluation of X-Ray irradiation as a non-chemical method of control and management of Coconut Rhinoceros Beetle Daniel Jenkins, University of Hawaii, Honolulu, HI United States (Presenter: Daniel Jenkins) (Daniel Jenkins, Ron Haff, Shizu Watanabe, Michael Melzer)
11:30AM	1800798	The Effect of Rice Straw Composting on Soil Temperature and Nutrients in Greenhouse Yutao Liu, China, People's Republic of (Presenter: Yutao Liu) (Yutao Liu, Weiming Ding, Zhaoqiang Rong)
11:45PM	1801077	Suitability Assessment and Mapping to Support Development of Resilient Communities and Livelihoods in Selected Vulnerable Communities in Cagayan Province Junel Guzman, Cagayan State University, Tuguegarao City, Cagayan Philippines (Presenter: Junel B. Guzman) (Junel Guzman)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 231

PRECISION ANIMAL MANAGEMENT: POULTRY

– Sponsored by PAFS-40, MS-23/19/3
Moderator: Josh Jackson, University of Kentucky, Lexington, KY

LOCATION: 357

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801293	3D Modelling of Live Chicken Colin Usher, Georgia Tech Research Institute, Atlanta, GA United States (Presenter: Colin Usher) (Colin Usher)
09:50AM	1800875	Feeding Behaviors of Broilers at Chicken-perceived vs. Human-perceived Light Intensities under Two Light Spectrums Guoming Li, Mississippi State University, Starkville, Mississippi United States (Presenter: Guoming Li) (Guoming Li, Yang Zhao, Joseph L. Purswell, Yuanji Liang, John W. Lowe)
10:05AM	1801613	Ventilation option modelling for laying hens in cage-free environment eileen fabian, Pennsylvania State University, University Park, PA United States (Presenter: Eileen Fabian) (Long Chen, Eileen Fabian, Daniel Hofstetter)
10:20AM	1801743	Assessment of heat stress in turkeys using animal vocalization analysis Longshen Liu, China, People's Republic of (Presenter: Longshen Liu) (Longshen Liu, Ji-Qin Ni, Yansen Li, Marisa Erasmus, Rachel Stevenson, Mingxia Shen)
10:35AM	1801184	Variation in Fan Operating Pressure in Commercial Broiler Houses Joseph Purswell, USDA-ARS Poultry Research Unit, Mississippi State, Mississippi United States (Presenter: Joseph Purswell) (Joseph Purswell, John Linhoss)
10:50AM		BREAK
11:00AM	1801601	Comparisons of acoustic features of hens in battery cages and alternative systems Du Xiaodong, China Agriculture University, Beijing, China, People's Republic of (Presenter: Chao Zong) (Yanfei Cao, Mulin Liu, Xiaodong Du, Guanghui Teng)
11:30AM	1800742	Monitoring locomotion of broilers affected by environmental enrichments Hong Li, University of Delaware, Newark, DE United States (Presenter: Hong Li) (Hong Li, Veronica Nacchia, Kai Liu)
11:45AM	1800180	Performance evaluation of high-efficiency fan shades in reduction of light leakage and spatial variation of illuminance in commercial broilers John Linhoss, Mississippi State University Ag Bio Eng, Mississippi State, MS United States (Presenter: John Linhoss) (John Linhoss, Joseph Purswell, Wes Lowe, Daniel Chesser)
12:00PM	1800655	An approach to monitor the spatial-temporal perch use by laying hens in an alternative housing system Chao Zong, China Agricultural University, Beijing, China, People's Republic of (Presenter: Chao Zong) (Chao Zong, Qiaowei Li, Taotao Mao, Guanghui Teng)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 232

INNOVATIVE RESOURCE SYSTEMS AND ENERGY STRATEGIES IN CONTROLLED ENVIRONMENTS

– Sponsored by PAFS-30, ES-300
Moderator: Peter Tikasz, McGill Univ, Montreal, QC Canada

LOCATION: 358

Time	Paper #	Title/Author
09:30AM		Introduction
09:35AM	1801174	Using Fertilizer Drawn Osmosis to Produce Irrigation Water and Energy for Hydroponic Farming Pouyan Pourmovahed, Oakland University, Rochester, Michigan United States (Presenter: Pouyan Pourmovahed) (Pouyan Pourmovahed, Jonathan Maisonneuve)
09:50AM	1800365	Development of a novel low ecological footprint vegetable production system in hot areas Moustafa Fadel, UAEU, AlAin, Abu Dhabi United Arab Emirates (Presenter: Moustafa Fadel) (Moustafa Fadel)
10:05AM	1800295	Evaluation of heat-pipe solar collectors for heating a single-span greenhouse José Humberto Lopez Diaz, Universidad Autonoma Chapingo, Texcoco, Mexico Mexico (Presenter: Jose Humberto Lopez-Diaz) (Jose Humberto Lopez Diaz, Efrén Fitz-Rodríguez, Jose Eduardo Rosales-Vicelis)
10:20AM	1801392	Transient simulation of a solar heating system for a single-span greenhouse in a peri-urban environment Efrén Fitz-Rodríguez, Universidad Autónoma Chapingo, Texcoco, Estado de México Mexico (Presenter: Efrén Fitz-Rodríguez) (Efrén Fitz-Rodríguez, Raquel López-Cruz, Irineo L. Salazar-Moreno, José E. Rosales-Vicelis, José H. López-Díaz)
10:35AM		BREAK
10:45AM	1800063	Day-to-night heat storage in greenhouses Ido Seginer, Technion, Haifa, Israel (Presenter: Ido Seginer) (Ido Seginer, Gerrit van Straten, Peter van Beveren)
11:00AM	1800553	Dynamic thermal modelling of a large plastic multi-span greenhouse: calibrated simulation and energy retrofit Enrico Fabrizio, Politecnico di Torino, Energy Department, Torino, Italy (Presenter: Enrico Fabrizio) (Ilaria Lando, Gianluca Serale, Enrico Fabrizio)
11:15AM	1801461	Impacts of Pharmaceuticals Presence in Irrigation Water on Soybean Germination and Early Growth Tianai Zhou, McGill University, Montreal, Quebec Canada (Presenter: Tianai Zhou) (Tianai Zhou, Shiv O. Prasher, Saji George, Jennifer Ronholm, Danielle Donnelly, Ali Mawof, Juhie Joshi, Peining Guan)

Tuesday, July 31 - 9:30AM-12:00PM

SESSION 233

INNOVATIVE RESEARCH AND CHALLENGES IN FOOD ENGINEERING - INVITED

– Sponsored by PRS Revitalization Task Force
Moderator: Litha Sivanandan, West Virginia University, Morgantown, WV; Shaojin Wang, Northwest A&F University, Yangling, Shaanxi, China

LOCATION: Grand Ballroom B

Speakers include the Recipients of the 2018 ASABE International Food Engineering Award and the 2018 ASABE Sukup Global Food Security award as well as leading engineers. Speakers will discuss their experiences related to challenges faced by those in the Food Engineering profession, challenges in educating engineers entering the food engineering profession, opportunities for engineering solutions to food safety and security, introduction of the structure, organization and plan of the PRS technical sessions. The session will conclude with an opportunity for food engineering professionals to discuss additional challenges and opportunities.

Time	Paper #	Title/Author
09:30AM		Introduction of the Session and Speakers Juming Tang, Chris Butts, Shaojin Wang
09:30AM	1801892	Sustainability Issues of Food Engineering in the Context of Food Security Dr. G S Vijaya Raghavan, McGill University, Ste-Anne-de-Bellevue, Quebec Canada
10:05AM	1801893	To Feed the Future, We Must First Seed the Future Dr Manjit Misra, Iowa State University, Ames, Iowa
10:35AM	1801894	Process Design for an Efficient Food Supply Chain Dr.Dennis Heldman, Ohio State University, Columbus, Ohio)
11:00AM	1801895	Introduction of the Sino-US Food and Agriculture Innovation Center Dr. Zhongli Pan, USDA ARS WRRRC Processed Foods Research, Albany, California
11:10AM	1801896	ASABE's PRS Community: Strengths and Opportunities Dr. Deepak Keshwani, University of Nebraska-Lincoln, Lincoln, Nebraska
11:30AM		PANEL DISCUSSION

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 234

EDUCATIONAL APPROACHES FOR TRANSDISCIPLINARY INSTRUCTION IN FOOD AND AGRICULTURAL SYSTEMS

– Sponsored by EOPD-203
Moderator: Luis Rodriguez, Univ of Illinois, Urbana, IL

LOCATION: 140B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800546	Application of Soft Systems Methodology in teaching transdisciplinary introduction to sustainable agricultural systems Peter Larbi, Arkansas State University, Jonesboro, AR United States (Presenter: Peter Larbi) (Peter Larbi)
2:50PM	1800363	Quantitative Food Safety Education for Engineers: Simulation-Based Enhancement Ashim Datta, Cornell University, Ithaca, NY United States (Presenter: Ashim Datta) (Ashim Datta)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

3:05PM	1800050	<p>The development of the INFEWS-ER: a virtual resource center for graduate training at the nexus of food, energy, and water Luis Rodríguez, Univ. of Illinois at Urbana-Champaign, Urbana, IL United States (Presenter: Luis Rodríguez) (Luis Rodríguez, Richard Koelsch, Jacek Koziel, Anna-Maria Marshall, Deanne Meyer, Anand Padmanabhan)</p>
3:20PM	1800509	<p>Using Community Based Learning to Reduce Food Waste Anne Dohmen, Iowa State University, Ames, IA United States (Presenter: Anne Dohmen) (Betrina Brewer, Dohmen)</p>
3:35PM	1801678	<p>Interdisciplinary Capstone Senior Design—the Good, Bad & the Ugly! Paul Weckler, Oklahoma State University, Stillwater, OK United States (Presenter: Paul Weckler) (Paul Weckler)</p>
3:50PM		BREAK
4:00PM	1800395	<p>Interdisciplinary Instruction: Novel Laboratory Activities for Agronomy and Agricultural Systems Alex Lindsey, The Ohio State University, Columbus, OH United States (Presenter: Alex Lindsey) (Andrew Mann)</p>
4:15PM	1801706	<p>Using food preservation education and outreach to promote community growth and stability in areas impacted by large post-harvest losses: The design of a collaborative program for pineapples in Rwanda Sherry Blunk, University of California-Davis, Davis, CA United States (Presenter: Sherry Blunk) (Seraphin Niyonsenga)</p>
4:30PM	1801393	<p>Visualization in the Optimization of Engineering Education Robert Stwalley, Purdue University, West Lafayette, Indiana United States (Presenter: Claire Haselhorst) (Robert Stwalley, Claire Haselhorst)</p>
4:45PM	1801731	<p>Understanding organizational culture and its impact on departmental strategic planning David Mabie, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: David Mabie) (David Mabie, Jeyam Subbiah, David Jones, Evan Curtis)</p>

3:20PM	1801155	<p>Pyrolysis of Wood Excelsior Residues for Biochar and Renewable Energy Production Catherine Brewer, New Mexico State University, Las Cruces, NM United States (Presenter: Catherine Brewer) (Kwabena Addae Sarpong, Andrea Salazar, Antonio Ortega, Keanu Telles, Koffi Djaman, Michael K. O'Neill, Delia J. Valles-Rosales, Catherine E. Brewer)</p>
3:35PM	1800889	<p>Bio-oil Upgrading over Nanocellulose-Derived Nano-Carbon Catalysts Doped with Metal Atoms Yayun Zhang, Washington State University, Richland, WA United States (Presenter: Yayun Zhang) (Yayun Zhang, Hanwu Lei, Zixu Yang, Elmar Villota, Moriko Qian)</p>
3:50PM		BREAK
4:00PM	1801658	<p>A process simulation framework for TOP and TAP methods to produce torrefied pellets Sudhagar Mani, University of Georgia, Athens, GA United States (Presenter: Sudhagar Mani) (Maryam Manouchehrinejad, Sudhagar Mani)</p>
4:15PM	1800583	<p>Evaluation of solvent recycling and particle size effects on hydrothermal carbonization Mohammad Heidari, University of Guelph, Guelph, Ontario Canada (Presenter: Precious Arku) (Mohammad Heidari, Shakirudeen Salaudeen, Precious Arku, Animesh Dutta)</p>
4:30PM	1800111	<p>Microwave-assisted catalytic and acidic depolymerization of alkaline lignin for production of aromatic hydrocarbons Moriko Qian, Washington State University, Richland, WA United States (Presenter: Moriko Qian) (Moriko Qian)</p>
4:45PM	1800178	<p>Rapid and simultaneous determination of furfural and 5-hydroxymethylfurfural in biomass hydrolysate by high-performance liquid chromatography Jun Li, Kansas State University, Manhattan, Kansas United States (Presenter: Jun Li) (Jun Li, Donghai Wang)</p>
5:00PM	1801811	<p>Role of Microbes in Simultaneous and Sustainable Power Generation with Phytoremediation in Constructed Wetland Microbial Fuel Cells (CW-MFCs) Beenish Saba, Ohio State University, Columbus, Ohio United States (Presenter: Beenish Saba) ()</p>

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 235

WOODY BIOMASS PROCESSING AND CONVERSION – Sponsored by

ASE-12, ES-220
Moderator: David Lanning, Forest Concepts, Auburn, WA

LOCATION: 140C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800033	<p>Wood Biomass, its Usages and Environmental Challenges in Nigeria Boniface Ugwuishiwu, University of Nigeria, Nsukka, Nigeria., Enugu Nigeria (Presenter: Boniface O. Ugwuishiwu) (Uke O. Samuel)</p>
2:50PM	1800877	<p>Mechanics of Woody Biomass Debarking: Shrub Willow Azadwinder Chahal, The Pennsylvania State University, State College, Pennsylvania United States (Presenter: Azadwinder Chahal) (Azadwinder Chahal)</p>
3:05PM	1800856	<p>Introduction to Rotary Shear Comminution for Bio-feedstocks Production David Lanning, Forest Concepts, LLC, Auburn, Washington United States (Presenter: David Lanning) (David Lanning, James Dooley, Amie Vo)</p>

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 236

EDUCATION, OUTREACH, & PROFESSIONAL DEVELOPMENT POSTER SESSION – Sponsored by EOPD

Moderator: F Richard Beard, Utah State Univ, Logan, UT

LOCATION: Atrium

Poster #	Paper #	Title/Author
1	1800394	<p>Educating the Educators: Connecting Secondary School Teachers to Technology in Agriculture Alex Lindsey, The Ohio State University, Columbus, OH United States (Presenter: Alexander Lindsey) (Alex Lindsey)</p>
2	1801550	<p>Engaging Farmers in Conservation Through Water Technology Farms Jonathan Aguilar, Kansas State University, Manhattan, KS United States (Presenter: Jonathan Aguilar) (Jonathan Aguilar, Danny Rogers, Anserd Foster, Bill Golden, Daniel Devlin)</p>
3	1801242	<p>Intercultural Dialogue to Shape Interdisciplinary Agricultural and Biological Engineering Research: A Commentary Ronald Smith, Purdue University, West Lafayette, Indiana United States (Presenter: Ronald J. Smith) (Pamala V. Morris, Myron McClure, Bernard Engel, Robert M. Stwalley III)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

- 4 1801231 **A Web-Based Interactive Virtual Laboratory System for Enhancing Education in Biorefineries and Instrumentation**
Lijun Wang, North Carolina A&T State University, Greensboro, NC United States (Presenter: Lijun Wang) (Lijun Wang, Qingan Zeng, Abolghasem Shahbazi, Abolhasan Hashemiso, Matthew Todd)
- 5 1801289 **Beating the Odds: Success Strategies for At-Risk Students**
Amy Kaleita, Iowa State University, Ames, IA United States (Presenter: Amy Kaleita) (Amy Kaleita, D. Raj Raman, Weiquan Luo)
- 6 1801708 **Promoting community growth and stability through food preservation education and outreach in areas impacted by large post-harvest losses: Design of a collaborative program for pineapples in Rwanda.**
Sherry Blunk, UCDAVIS, Davis, CA United States (Presenter: Sherry Blunk) (Seraphin Niyonsenga)
- 7 1800121 **Local Knowledge: Farmers' Perspectives on Waste, Water, and Ways of Knowing**
Erin Menzies Plier, Cornell University, Ithaca, NY United States (Presenter: Erin Menzies Plier) (Erin Menzies Plier, Lori Leonard, Rebecca Schneider, M. Todd Walter)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 237 ENERGY SYSTEMS POSTER

SESSION – Sponsored by ES

Moderator: Glenn Farris, AGCO Corp, Duluth, GA

LOCATION: Atrium

- | Poster # | Paper # | Title/Author |
|----------|---------|--|
| 8 | 1800412 | Effects of hydrothermal-carbonized and compression-molded factors on molding and energy consumption of wheat straw
Zhang Xinyan, China Agricultural University, Beijing, Hai-Dian District China, People's Republic of (Presenter: Zhang Xinyan) (Zhang Xinyan) |
| 9 | 1801158 | Hydrothermal Liquefaction of Algae Grown on Brackish Dairy Wastewater
Catherine Brewer, New Mexico State University, Las Cruces, NM United States (Presenter: Catherine Brewer) (Meshack Audu, Maung Thein Myint, Feng Cheng, Kwonit Mallick, Umakanta Jena, Nagamany Nirmalakhandan, Catherine E. Brewer) |
| 10 | 1800358 | Studies on the bio-oil properties and oil yield of some indigenous microalgae species at varying extraction temperature
Asoiro Felix Uzochukwu, University of Nigeria, Nsukka, Nsukka, Enugu State Nigeria (Presenter: Asoiro Felix Uzochukwu) (Asoiro Felix Uzochukwu, Wilfred I. Okonkwo, Clement O. Akubuo, Nkechinyere O. Nweze) |
| 11 | 1800336 | Analysis of energy consumption according to using air circulation fans in greenhouse
Taeseok Lee, Rural Development Administration, Jeonju-si, Jeollabuk-do Korea, South (Presenter: Taeseok, Lee) (Youngsun Ryou, Hyungkweon Kim, Younghwa Kim, Sungsik Oh) |
| 12 | 1800351 | Analysis of the horizontal distribution of temperature and humidity in single-span plastic greenhouses
Hyung-Kweon Kim, Jeonju, Jeollabuk-do Korea, South (Presenter: Hyung-Kweon Kim) (Young-Sun Ryou, Young-Hwa Kim, Tae-Seok Lee, Sung-Sik Oh) |
| 13 | 1801374 | Biogas Potential of Dairy Manure Blended with Organic Solid Waste Feedstocks Undergoing Mesophilic Anaerobic Digestion
Jason Smith, Michigan State University, East Lansing, Michigan United States (Presenter: Jason Smith) (Steve Safferman) |

- 14 1800028 **Catalytic fast pyrolysis of corn stover in a fluidized bed heated by hot flue gas: physicochemical properties of bio-oil and its application**
Yang wen, ShanDong University of technology, zibo, Shandong China, People's Republic of (Presenter: Yang Wen, Fu Peng, Yi Weiming) (Yang Wen, Fu Peng, Yi Weiming)
- 15 1801379 **Catalytic hydroprocessing of pyrolysis bio-oil over cobalt-molybdenum carbide catalysts**
Rui Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Rui Li) (Rui Li, Bo Zhang)
- 16 1801339 **Enzymatic pre-treatment of high content cellulosic feedstock improves biogas production**
Nanh Lovanh, USDA-ARS, Bowling Green, KY United States (Presenter: Nanh Lovanh) (Nanh Lovanh, Graziela Ruiz-Aguilar, John Loughrin)
- 17 1800272 **Improve energy efficiency in rural areas through UDAD Rural Energy for America Program (REAP): a case study from Missouri State**
Jianfeng Zhou, University of Missouri, Columbia, MO United States (Presenter: Jianfeng Zhou) (Jianfeng Zhou, Leon Schumacher, Willard Downs)
- 18 1800149 **Investigation of the initiation temperature causing the self-heating of biomass in oxidative torrefaction**
Takanori Itoh, Hokkaido University, Sapporo, Hokkaido Japan (Presenter: Takanori Itoh) (Takanori Itoh, Kazunori Iwabuchi, Naohiro Maemoku, Izumi Sasaki, Katsumori Taniguro)
- 19 1800203 **Modeling and simulation of engine generator set using biogas: a control system approach**
Marcelo José da Silva, Federal University of Minas Gerais, Montes Claros, Minas Gerais Brazil (Presenter: Marcelo José Da Silva) (Marcelo Jose da Silva, Alexandre Correa Melo)
- 20 1801234 **Oil sorption capacity of switchgrass and corncob particles; effect of particle size and torrefaction**
Jaya Tripathi, Pennsylvania State University, State College, Pennsylvania United States (Presenter: Jaya Tripathi) (Jaya Tripathi)
- 21 1800620 **On the techno-economic feasibility of recycling hydrolyzed biomass to improve cellulose conversion**
Haider Kadhum, Oregon State University, Corvallis, Oregon United States (Presenter: Haider Kadhum) (Durga Madhab Mahapatra, Ganti Murthy)
- 22 1800155 **Production of biochar-based hierarchical carbon for use as electrochemical supercapacitor electrode materials**
Shuangning Xiu, North Carolina A&T State University, Greensboro, NC United States (Presenter: Shuangning Xiu) (Shuangning Xiu)
- 23 1800069 **Pyrolysis and Thermal Decomposition Kinetics of White pine and Norway spruce needles**
Oluwatosin Oginni, West Virginia University, Morgantown, WV United States (Presenter: Connor Crowley) (Oluwatosin Oginni, Kaushlendra Singh)
- 24 1800496 **Rapid analysis of potassium content in cotton stalks of China using laser-induced breakdown spectroscopy**
Shuangshuang Ma, China agricultural university, Beijing, China, People's Republic of (Presenter: Shuangshuang Ma) (Lujia Han, Guangqun Huang)
- 25 1800325 **Synthesis and Performance of Carbon-based Solid Acid Catalyst for Organosolv Fractionation**
Wendy Mateo, Washington State University, Richland, Washington United States (Presenter: Wendy C. Mateo) (Wendy Mateo, Hanwu Lei, Elmar Villota, Zixu Yang, Yayun Zhang, Marie Qian, Kezhen Qian, Dingle Duan)
- 26 1800060 **A Road Map to the Implementation of Green Energy Techniques in Sub-Saharan Africa**
Abubakar Ibrahim Suleiman, University of Exeter, UK, Truro, Cornwall Kingdom (Presenter: Abubakar Ibrahim Suleiman) (Abubakar Ibrahim Suleiman)

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TUESDAY, JULY 31

- 27 1801225 **Comparative partial oxidation of bioethanol and methane steam reforming for mobile fuel cells.**
Precious Arku, University of Guelph, Guelph, Ontario Canada (Presenter: Precious Arku) (Precious Arku, Amnesh Dutta)
- 28 1800072 **Upgrading bio-oil by co-pyrolysis of lignin and soapstock: Impacts of microwave-assisted acid pre-treatment prior to co-pyrolysis**
Dengle Duan, Washington State University, Richland, Washington United States (Presenter: Dengle Duan) (Dengle Duan, Hanwu Lei, Yunpu Wang, Roger Ruan)
- 29 1800318 **Design of the Small Domestic Yak Milking Machine**
Xiaopeng Bai, China Agriculture University, Beijing, China, People's Republic of (Presenter: Yalei Wu ,Yan Li) (Yulong Zhang, Zhiqin Wang, Decheng Wang, Xiaopeng Bai, Zhiheng Lu, Yalei Wu, Yan Li , He Li, Lei Yu)
- 30 1801153 **Simulation of nitrogen contaminants during biomass gasification using CFD-DEM approach**
Oluwafemi Oyedeki, University of Tennessee, Knoxville, Tennessee United States (Presenter: Oluwafemi Oyedeki) (Oluwafemi Oyedeki, Nourredine Abdoulmoumine)
- 31 1800799 **Adsorption mechanisms of Pb2+ onto wheat straw at different plant scales based on the method of metal speciation**
Yaoyao Cao, China Agricultural University, China, People's Republic of (Presenter: Yaoyao Cao) (Yaoyao Cao)
- 32 1800801 **The Effect of Combination of Cutting and Surface Rubbing Pre-treatment on Anaerobic Digestibility of Rice Straw**
Yutao Liu, China, People's Republic of (Presenter: Yutao Liu) (Yutao Liu, Zhaoqiang Rong, Weiming Ding)
- 33 1801459 **Comparative techno-economic analyses of bio-coal production through wet and dry torrefaction processes of different biomass feedstocks**
Adetoyese Olajire Oyedun, University of Alberta, Edmonton, Alberta Canada (Presenter: Adetoyese Olajire Oyedun) (Maryam Akbari, Adetoyese Olajire Oyedun, Amit Kumar)
- 34 1801455 **Production of High Purity Oligomeric Oxymethylene Ethers as Diesel Fuels from Biomass and Natural Gas – A Techno-economic comparative assessment**
Adetoyese Olajire Oyedun, University of Alberta, Edmonton, Alberta Canada (Presenter: Adetoyese Olajire Oyedun) (Adetoyese Olajire Oyedun, Philipp Haltenort, Amit Kumar, Arnold Ulrich, Jorg Sauer)
- 35 1800901 **Techno-economic analysis of levoglucosan production via fast pyrolysis of cotton straw in China**
Junqi Wang, Ohio State University, Wooster, Ohio United States (Presenter: Junqi Wang) (Junqi Wang, Ajay Shah)
- 36 1800671 **Life Cycle Assessment on an Anaerobic Digestion-Based Biorefinery for the Recovery of Energy, Water and Nutrients from Agricultural Wastes**
Gail Joseph, North Carolina A&T State University, Greensboro, North Carolina United States (Presenter: Gail Joseph) (Dr. Lijun Wang, Dr. Bo Zhang)
- 37 1800236 **Simulation model to evaluate operational costs of integrated landscape biomass supply chain design**
Bhavna Sharma, ORNL, Oak Ridge, TN United States (Presenter: Bhavna Sharma) (Bhavna Sharma, Robin Clark, Erin Webb)
- 38 1801439 **Implementation of Sediment Microbial Fuel Cells**
Mallory Ware, Clemson University, Clemson, South Carolina United States (Presenter: Mallory Ware) (Colby Cofield, Paige Kimble, Emilie Sidelinger)
- 39 1801832 **GIS-Base Biogas Potential Assessment of Anambra State of Nigeria**
Emmanuel Chukwuma, Nnamdi Azikiwe University, Awka, Anambra Nigeria (Presenter: Emmanuel Chukwuma) (Emmanuel Chukwuma)

- 40 1800319 **Pelletization properties of Caragana**
Xiaopeng Bai, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu ,Yan Li) (Zheng Zhu, Zhiqin Wang , Decheng Wang, Xiaopeng Bai, Yin hao Jin, Yalei Wu, Yan Li)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 238

TRANSFORMATIONAL SOLUTIONS IN SUSTAINABLE AGRICULTURAL DEVELOPMENT IN AFRICA - PANEL

– Sponsored by E-2050, ANG-ASABE, AABFEIO, AOCABFE

Moderator: Nourredine Abdoulmoumine, University of Tennessee, Knoxville, TN

LOCATION: Grand Ballroom B

Countries in Africa have one of the largest numbers of smallholder farmers who still utilize low input and low level technologies in their farming operations. Farmer sizes are characteristically small (2 ha on average) with lower productivity which is lagging when considering the soaring demographics. If Africa is to try to catch up in agricultural development and feed its people, incremental steps to improve productivity might not be sufficient. How African countries can use new transformational technologies to address problems at the nexus of water, energy, plant and animal systems to promote sustainable agricultural development? This panel discussion aims to kick-start a conversation on futuristic, transformational aspects of agriculture development in Africa. The digital agriculture is here and critically influencing agriculture in a major way. This session will provide an opportunity for African, Chinese and Indian ASABE members to share experiences and discover opportunities to foster collaboration between the three communities with the goal of improving the agricultural productivity of smallholders in these regions through the implementation of transformational technologies.

Panelist

G S V Raghavan, McGill University, Ste-Anne-de-Belle-vue, Quebec Canada

Kifle Gebremedhin, Cornell University, Ithaca, New York United States)

Xiongkui He, Beijing, China, People's Republic of

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 5:00PM-7:00PM

SESSION 239

TECHNICAL TRENDS AND CAREER OPPORTUNITIES IN THE U.S. AND KOREA - INVITED – Sponsored by

AKABFE

Moderator: Young K. Chang, Dalhousie University, Truro, NS, Canada

LOCATION: 140F

This session is intended to facilitate communication between Korean and U.S. professionals and students in the field of agricultural, biological and food engineering. Discussion will center on “Technical Trends and Career Opportunities in the U.S. and Korea,” and the invited speakers will address a wide range of topics covering trends both past and present as well as directions the profession will likely take in the future. Speakers will also offer practical advice on pursuing professional careers.

5:00PM

Introduction

5:05PM

Recent Trends of Agricultural Machinery and Biosystems Engineering in Korea

Jong Hoon Chung, Seoul National University, Korea

5:20PM

The Challenge of Agriculture on 4th Industrial Revolution

Kyo Suh, Seoul National University, Korea

5:25PM

Research Spotlights (Student Competition)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 240

3D MACHINE VISION FOR SENSING AND AUTOMATION – Sponsored by

ITSC-312

Moderator: Seung Chul Yoon, USDA ARS, Athens, GA

LOCATION: 140D

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800568	3D imaging for on-line food processing automation Yang Tao, University of Maryland, College Park, Maryland United States (Presenter: Yang Tao) (Yang Tao)
2:50PM	1801733	Automated morphological trait extraction for sorghum plants via 3D point cloud data analysis Lirong Xiang, Iowa State University, Ames, IA United States (Presenter: Lirong Xiang) (Lirong Xiang, Yin Bao, Lie Tang, Maria Salas Fernandez)
3:05PM	1800677	3D computer vision and machine learning based technique for high throughput cotton boll mapping under field conditions Shangpeng Sun, The University of Georgia, Athens, Georgia United States (Presenter: Shangpeng Sun) (Changying Li, Andrew H. Paterson, Yu Jiang, Jon S. Robertson)
3:20PM	1801540	Evaluation of mobile 3D Time of Flight based canopy mapping system for tree fruit crops Momtanu Chakraborty, Washington State University, Prosser, Washington United States (Presenter: Momtanu Chakraborty) (Momtanu Chakraborty, Lav Khot, Sindhuja Sankaran, Pete Jacoby)
3:35PM	1801040	Comparisons of non-contact methods for pig weight estimation Chao Zong, China Agricultural University, Beijing, China, People's Republic of (Presenter: Chao Zong) (Chao Zong, Zhuo Li, Yanrong Zhuang, Jionghua Yu, Guanghui Teng)
3:50PM		BREAK

4:00PM 1800525

Automatic apple detection using a Kinect camera based on deep learning

longsheng fu, Northwest A&F University, Yangling, Shannxi China, People's Republic of (Presenter: Longsheng Fu) (Longsheng Fu, Xin Zhang, Yaqoob Majeed, Jing Zhang, Manoj Karkee, Qin Zhang)

4:15PM 1800324

Monitor geomatical information of plant by reconstruction 3D model based on Kinect V2

Le Wang, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: WangLe) (Le Wang, Yang Hu, Huanan Jiang, Weinan Shi, Xueping Ni)

4:30PM 1801305

A simple 3D image reconstruction using ImageJ

Sunoj Shajahan, North Dakota State University, Fargo, North Dakota United States (Presenter: Sunoj Shajahan) (C. Igathinathane, J. Hendrickson, D. Archer)

4:45PM 1800410

Calibration Method Research of Structured-light Sensor Camera System for Soil Surface Roughness Measurement

Jie Liu, Huazhong Agricultural University, Wuhan, Hubei China, People's Republic of (Presenter: Jie Liu) (Yang Xiaojun, Xie Hang, Liao Yitao, Dai Ning, Gao Guangyin, Liu Jie)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 241

ADVANCED COMPUTATIONAL APPROACHES FOR SOLVING AGRICULTURAL & BIOLOGICAL ENGINEERING PROBLEMS-PART 2

– Sponsored by ITSC-217

Moderator: Jessica Drewry, University of Wisconsin, Madison, WI

LOCATION: 141

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800277	Screening Environmental Data for Outliers using JMP software: A Time-saving and Unbiased Approach Christopher Nzediegwu, McGill University, Montreal, Quebec Canada (Presenter: Christopher Nzediegwu) (Shiv Prasher, Eman Elsayed, Jaskaran Dhiman, Ali Mawof)
2:50PM	1800778	Theoretical analysis and multiscale finite element simulation of the dynamic behavior of maize kernel impact on threshing tooth Bo Wang, Zhejiang University, Hangzhou, Zhejiang China, People's Republic of (Presenter: Bo Wang) (Bo Wang, Jun Wang, Dongdong Du)
3:05PM	1800196	Interactive Total Mixed Ration formulation using Differential evolution Daniel Uyeh, Kyungpook National University, Bukgu, Daegu Korea, South (Presenter: Uyeh Daniel Dooyum) (Rammohan Mallipeddi, Trinadh Pamulapati, Tusan Park, Junhee Kim, Seungmin Woo, Yushin Ha, Taehan Kim)
3:20PM	1800676	Sorting International Important Ramsar Wetland Documents Based on Latent Semantic Model Ping Lin, Yancheng Institute of Technology, Yancheng, Jiangsu China, Republic of (Taiwan) (Presenter: Ping Lin) (Yongming Chen, Du Li, Ping Lin, Jianqiang He)
3:35PM	1800575	An integrated modeling framework for corn, ethanol, and beef systems using service-oriented architecture Ryan Anderson, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Deepak Keshwani) (Ryan Anderson, Deepak Keshwani, Ashu Guru, Jeyamkondan Subbiah)
3:50PM		BREAK

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TUESDAY, JULY 31

4:00PM	1800982	<p>Finite Element Modeling of Domestic and Food Processing Wastewater Land Application Treatment Systems Younsuk Dong, Michigan State University, East Lansing, MI United States (Presenter: Younsuk Dong) (Younsuk Dong, Steven Safferman)</p>
4:15PM	1800340	<p>Study on droplet deposition through in-situ precipitation on leaf surface of rice Jing Ma, Jiangsu univ, Zhenjiang, China, People's Republic of (Presenter: Jing Ma) (Jing Ma)</p>
4:30PM	1801301	<p>Process-based numerical modeling of pesticide spray and drift from ground spray applications: a review Se-Woon Hong, The Ohio State University, Columbus, Ohio United States (Presenter: Se-Woon Hong) (Se-Woon Hong, Hong)</p>
4:45PM	1801359	<p>Predicting spray drift from air-assisted sprayers using air quality dispersion models Se-Woon Hong, The Ohio State University, Columbus, Ohio United States (Presenter: Se-Woon Hong) (Se-Woon Hong, Hong)</p>
5:00PM	1801400	<p>Sensor data driven parameter estimation for Agricultural Model using Coordinate Descent Anupam Bhar, Iowa State University, Ames, Iowa United States (Presenter: Anupam Bhar) (Zhiming Qi, Robert Malone, Ratnesh Kumar)</p>

3:35PM	1801120	<p>Development, implementation, and evaluation of a Wireless Sensor Network for a Disease Warning System Thiago Borba Onofre, University of Florida, Gainesville, Florida United States (Presenter: Thiago Borba Onofre) (Thiago Borba Onofre, Clyde McNair, Janise Fraisse, Vinicius Cerbaro, Natalia Peres)</p>
3:50PM	BREAK	
4:00PM	1801536	<p>In-Field Soil and Plant Sensor Network to Improve Variable Rate Irrigation Efficiency Jasreman Singh, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Jasreman Singh) (Jasreman Singh, Yufeng Ge, Geng Bai)</p>
4:15PM	1801025	<p>Pest Forecasting of Sugarcane Borer Based on In-field IoT System and Meteorological Information Xiuhua Li, Guangxi University, China, People's Republic of (Presenter: Xiuhua Li) (Xiuhua Li, Xiuhua Li, Li-an Zhao, Ce Yang)</p>
4:30PM	1800048	<p>Precision Arduino Sensor to Depolarize Climate Conversation Paul Oppong Kwabena, Jiangsu University, Zhenjiang, Jiangsu Province China, People's Republic of (Presenter: Oppong Paul Kwabena) (Hanping Mao, Lin Li, Ning Yang)</p>
4:45PM	1800465	<p>Design, development and evaluation of an open source gateway for the SmartFarm Decision Support System Caleb Fink, California Polytechnic State University, San Luis Obispo, CA United States (Presenter: Caleb Fink) (Caleb Fink, Bo Liu, Fletcher Easton, Chandra Krintz, Rich Wolski, Balaji Sethuramasamyraja)</p>

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 242

CLoud COMPUTING AND INTERNET OF THINGS IN AGRICULTURE

– Sponsored by ITSC-254, ITSC-217

Moderator: Hasan Seyyedhasani, University of Kentucky, Lexington, KY

LOCATION: 140E

Time	Paper #	Title/Author
Introduction		
2:30PM	1801252	<p>Real-Time Data in Agriculture — examples of value Dennis Buckmaster, Purdue University, West Lafayette, IN United States (Presenter: Dennis Buckmaster) (James Krogmeier, Aaron Ault, Yang Wang, Yaguang Zhang, Alex Layton, Sam Noel, Andrew Balmos, Amelia Lindsay)</p>
2:50PM	1801248	<p>The Trellis Framework for Automatic Food Safety Data Transfer with OADA Alexander Layton, Purdue University, West Lafayette, Indiana United States (Presenter: Alexander Layton) (Alexander Layton, Samuel Noel, Yang Wang, Andrew Balmos, Aaron Ault, James Krogmeier, Dennis Buckmaster)</p>
3:05PM	1801233	<p>Sustainable Animal Health Management with Real-time Remote Activity Monitoring System Development Sudhanshu Panda, University of North Georgia, Oakwood, Georgia United States (Presenter: Dr. Sudhanshu Sekhar Panda) (Sudhanshu Panda, Thomas Terrill, Lance Hundt, Luke Brady, Andy Novobiliski, Jan Van Wyk)</p>
3:20PM	1800588	<p>Development of Real-time Wireless Industrial Internet of Things (IIOT) to Monitor and Manage Microclimate Conditions in Dairy Housing Christopher Choi, University of Wisconsin-Madison, Madison, WI United States (Presenter: Christopher Choi) (Hanwook Chung, Jingjie Li, Bo Zhou, Mario Mondaca, Younghyun Kim, Christopher Choi)</p>

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 243

MACHINE VISION FOR PRECISION AGRICULTURE - PART 2

– Sponsored by ITSC-312, MS-54

Moderator: Daeun Choi, Pennsylvania State University, University Park, PA

LOCATION: 142A

Time	Paper #	Title/Author
Introduction		
2:30PM	1801269	<p>A computer Vision-Based Automation for Various Dormant Vineyard Measurements Abhishesh Silwal, Carnegie Mellon University, Pittsburgh, PA United States (Presenter: Abhishesh Silwal) (Abhishesh Silwal, George Kantor, Terry Bates)</p>
2:50PM	1801038	<p>Branch Trajectory Fitting and Localization of Shaking Position for Apple Automatic Vibration Harvesting Machinery using Faster-RCNN Jing Zhang, Washington State University, Prosser, WA United States (Presenter: Jing Zhang) (Jing Zhang, Manoj Karkee, Qin Zhang, Majeed Yaqoob, Longsheng Fu)</p>
3:05PM	1800388	<p>Evaluation of Kinect depth sensor to monitor laying hens activities in a pilot henhouse Du Xiaodong, China Agriculture University, Beijing, China, People's Republic of (Presenter: Chao Zong) (Chao Zong, Xuming Liu, Guanghui Teng)</p>
3:20PM	1801559	<p>Development of a High-Resolution, As-Applied Mapping System for Sub-surface Fertilizer Applicators Richard Colley III, The Ohio State University, Columbus, Ohio United States (Presenter: Richard Colley III) (John Fulton, Scott Shearer, Steve Culman)</p>
BREAK		
3:35PM	1801507	<p>Rapid Fuzzy method of Image Edge Detection for Robust Canopy Characterization Yanlei Xu, Washington State University, Prosser, Washington United States (Presenter: ZongMei Gao) (Lav Ramchandra Khot, Zongmei Gao, Qin Zhang)</p>

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

- 4:00PM 1800761 **Yield Estimation Using Unmanned Aerial Vehicle Remote Sensing System In Close Planting Cotton Field**
Kunlin Zou, China, People's Republic of (Presenter: Kunlin Zou) (Kunlin Zou)
- 4:15PM 1800959 **Predicting soil organic matter from cell phone images**
Asim Biswas, University of Guelph, Guelph, Ontario Canada (Presenter: Asim Biswas) (Asim Biswas, Yuanyuan Fu, Wenjun Ji, Viacheslav Adamchuk)

Tuesday, July 31 - 2:30PM-5:00PM
SESSION 244

- SENSING FOR HIGH-THROUGHPUT PHENOTYPING** – Sponsored by ITSC-348, ITSC-312
Moderator: Sindhuja Sankaran, Washington State University, Pullman, WA
LOCATION: 140F
- | Time | Paper # | Title/Author |
|--------|---------|---|
| 2:30PM | | Introduction |
| 2:35PM | 1801629 | 360-degree view multi-spectral point cloud generation for the characterization of plant morphological and chemical traits
Suresh Thapa, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Suresh Thapa) (Suresh Thapa, Suresh Thapa, Yufeng Ge) |
| 2:50PM | 1801426 | Development of an automated multi-sensor system for high-throughput phenotyping
Tanzeel Rehman, Purdue University, West Lafayette, Indiana United States (Presenter: Tanzeel Rehman) (Tanzeel Rehman, Jian Jin, Liangju Wang, Zhihang Song, Dongdong Ma) |
| 3:05PM | 1801452 | Elimination of micro-climate issues by using an innovative automatic greenhouse system
Dongdong Ma, Purdue University, West Lafayette, In United States (Presenter: Dongdong Ma) (Dongdong Ma, Jian Jin, Liangju Wang, Suraj Amatya) |
| 3:20PM | | BREAK |
| 3:30PM | 1800288 | Field high-throughput phenotyping in soybean drought tolerance
Jianfeng Zhou, University of Missouri, Columbia, MO United States (Presenter: Jianfeng Zhou) (Jing Zhou, Xiuqing Fu, Heng Ye, Henry Nguyen) |
| 3:45PM | 1800296 | Low-cost high-accuracy measurement system of plant height based on infrared photosensitive tube sensing
Jing Xu, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Jing Xu) (Jing Xu, Jinyang Li, Hongwei Sun, Xinhua Wei) |
| 4:00PM | 1801791 | Fissure detection in rough rice and head rice yield prediction using X-ray imaging
Hu Shi, Univ of Arkansas, Fayetteville, Arkansas United States (Presenter: Hu Shi) (Hu Shi, Zephania Odek, Terry Siebenmorgen) |

Tuesday, July 31 - 2:30PM-5:00PM
SESSION 245

- UAV FOR SENSING, IMAGING, AND CROP MATERIAL APPLICATION - PART 2** – Sponsored by ITSC-318, MS-58, MS-60
Moderator: Yiannis Ampatzidis, University of Florida, Immokalee, FL
LOCATION: 250B
- | Time | Paper # | Title/Author |
|--------|---------|---|
| 2:30PM | | Introduction |
| 2:35PM | 1801173 | Identify and Develop Glyphosate-Resistant Weed Maps in crop Fields Based on UAV imagery
Alimohammad Shirzadifar, NDSU, Fargo, ND United States (Presenter: Alimohammad Shirzadifar) (Alimohammad Shirzadifar, Sreekala Bajwa, Mike Ostlie, Mohammadmehdi Maharlooei, Kirk Howatt, Kathryn Hooge, John Nowatzki) |
| 2:50PM | 1800024 | Wheat yield prediction using hyperspectral images collected by Unmanned Aerial Vehicle (UAV)
Chuanqi Xie, United States (Presenter: Chuanqi Xie) (Chuanqi Xie, Ce Yang, Katie Liberatore, Shahryar Kianian) |
| 3:05PM | 1800578 | Utilizing UAV Remote Sensing Data for Leaf Area Index Assessment in Arid Land Cotton Crops
Sara Harders, University of Arizona, Tucson, Arizona United States (Presenter: Sara Harders) (Kelly Thorp, Andrew French, Richard Ward) |
| 3:20PM | 1800269 | UAV Multi-spectral Images for Mapping Citrus Greening (HLB) and Nutrient Deficiency
Sunil Mathanker, University of Puerto Rico, Mayaguez, Puerto Rico United States (Presenter: Sunil Mathanker) (Sunil Mathanker) |
| 3:35PM | | BREAK |
| 3:45PM | 1800830 | Develop an in-field calibration method for aerial thermal imaging: preliminary result
Rui Xu, University of Georgia, Athens, GA United States (Presenter: Rui Xu) (Changying Li, Andrew H. Paterson) |
| 4:00PM | 1801753 | Inference of irrigation treatments in an almond orchard using small unmanned aerial vehicles
Tiebiao Zhao, University of California, Merced, Merced, CA United States (Presenter: Tiebiao Zhao) (Tiebiao Zhao, Haoyu, Applicant 3: David Niu, Applicant 3: Doll, Dong Wang, YangQuan Chen) |
| 4:15PM | 1800443 | Development of Multi-spectral Information Acquisition System for Multi-rotor UAV Platform
hong sun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hong Sun) (Yaowei Long, Wenyun Wang, Yuhao Wang, Ziming Zhai, Zhangsheng Wu, Hong Sun, Minzan Li) |
| 4:30PM | 1801638 | Detection of Sclerotinia Stem Rot of Oilseed Rape (Brassica napus L.) Using Image-based Low-altitude Remote Sensing Technology
Hongyan Zhu, Zhejiang University, Hangzhou, Zhejiang Province China, People's Republic of (Presenter: Hongyan Zhu) (Hongyan Zhu) |

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TUESDAY, JULY 31

Tuesday, July 31 - 5:00PM-7:00PM

SESSION 246

INFORMATION TECHNOLOGY, SENSORS & CONTROL SYSTEMS POSTER SESSION – Sponsored by ITSC

Moderator: Seung-Chul Yoon, USDA ARS, Athens, GA

LOCATION: Atrium

Time	Paper #	Title/Author
1	1800734	A Self-adjusting System of Pesticide Spraying Manipulator Based on MCU Tan Yu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Wu Gang, Xu Ding, Li Shixiong, Li Jianping, Tan Yu)
2	1801041	A Study on an Intelligent Control System in Facility Agricultural Greenhouse Xunsheng Ji, Jiangnan University, China, People's Republic of (Presenter: Xunsheng Ji) (Xunsheng Ji)
3	1800629	Activity Recognition for Harvesting via GPS Tracks using Neural Networks Yaguang Zhang, Purdue University, West Lafayette, Indiana United States (Presenter: Yaguang Zhang) (Yaguang Zhang, Aaron Ault, James Krogmeier, Dennis Buckmaster)
4	1801506	An Optical biosensor platform to detect E. coli from animal feed Wonjin Shin, Kyungpook National University, Daegu, Bukgu Korea, South (Presenter: Wonjin Shin) (Wonjin Shin, Tusan Park)
5	1801510	Analysis of mixed ratio of waste cooking-oils in biodiesel production process using near-infrared spectroscopy Hoseo Lee, Kyungpook National University, Daegu, Korea, South (Presenter: Hoseo Lee) (Hoseo Lee, Tusan Park)
6	1800192	Assessing the Spatial Accuracy and Precision of LiDAR and Photogrammetry for Remote Sensing in Agriculture Surya Saket Dasika, University of Kentucky, Lexington, Kentucky United States (Presenter: Surya Saket Dasika) (Surya Saket Dasika, Michael Sama, Luis Pampolini, Christopher Good, Joseph Dvorak)
7	1800730	Automatic Control System of Boom Height and Spray Test Songlin Wang, Northwest A & F University, Yangling, Shaanxi China, People's Republic of (Presenter: Songlin Wang) (Songlin Wang, Hanjie Dou, Yuanyuan Gao, Xueguan Zhao, Xiu Wang)
8	1800507	Automatic Steering System for Land Leveling based on GNSS Xi Kang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xi Kang) (Yunpeng Jing, Youxiang Xia, Gang Liu)
9	1800879	Calibration and evaluation of an N2O Isotopic Analyzer for measuring isotopic composition of soil-derived N2O flux during long-term in-field campaigns. Jordi Francis Clar, UW Madison, Madison, Wisconsin United States (Presenter: Jordi Francis Clar) (Robert P. Anex)
10	1800445	Chlorophyll content detection of potato leaf based on hyperspectral image technology Hong Sun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hong Sun) (Wenyun Wang, Zihan Huang, Ning Lu, Hong Sun, Qin Zhang)
11	1801029	Combine harvester remote fault diagnosis system Dong Sun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Dong Sun) (Dong Sun, Du Chen, Ya Wei Zhang, Yu Wang, Shu Mao Wang, Ling Wang)

12	1800718	Control system of fertilization for the foliage of greenhouse vegetables Liu Xingxing, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Liu Xingxing, Zhang Tong, Zhang Ran, Wan Chang, Wu Gang, Li Shixiong, Tan Yu)
13	1801777	Date palm identification using Sentinel and Landsat satellite imagery Mohammadmehdi Maharlooeei, Shahid Bahonar University of Kerman, Kerman, Iran (Presenter: Mohammadmehdi Maharlooeei) (Sahar Rahnama, Mohammadmehdi Maharlooeei, Mohammadali Rostami, Hossein Maghsoudi)
14	1800478	Depth map restoration based on Kinect camera Qibing Zhu, Jiangnan University, Wuxi, Jiangsu China, People's Republic of (Presenter: Qibing Zhu) (Yue Zhang, Qibing Zhu, Min Huang, Ya Guo)
15	1801265	Down-pressure Control System for Adequate and Consistent Sowing Depth of No-till Planter Yuanyuan Gao, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yuanyuan Gao) (Yuanyuan Gao, Xiu Wang, Xueguan Zhao, Hanjie Dou, Shuo Wang, Jichen Cai, Songlin Wang)
16	1801136	Design of A Wireless Remote Control System for Automatic Pruning Machine Yanxin Yin, NERCITA, Beijing China, People's Republic of (Presenter: Yanxin Yin) (Yanxin Yin, Wenbin Wen, Jian Li, Feng Kang, Yanxin Yin)
17	1801389	Design of an In-Canopy Sprinkler Monitoring System for Center Pivot Irrigation Aaron Akin, Kansas State University, Manhattan, Kansas United States (Presenter: Aaron Akin) (Aaron Akin)
18	1801477	Detection of early bruises in apples with different colors and textures using multi-resolution microwave imaging method Wei Lu, Nanjing Agricultural University, Nanjing, Jiangsu China, People's Republic of (Presenter: Wei Lu) (Wei Lu, Zeshuo Wei, Xiaodong Shi, Yiming Deng, Qiang Zhang)
19	1800930	Detection of Internal Defect of Apples by a Multi-channel Hyperspectral Imaging System Yuping Huang, Michigan State University, East Lansing, MI United States (Presenter: Yuping Huang) (Yuping Huang)
20	1800611	Development and application of a portable specialized Vis/NIR detective device for grape quality Leiying Pan, Nanjing Agricultural University, Nanjing, Jiangsu China, People's Republic of (Presenter: Leiying Pan) (Leiying Pan, Hui Xiao, Ke Sun, Kang Tu)
21	1800548	Development and Research of Portable Soil Total Nitrogen Detector Based on ZigBee Technology Peng Zhou, China Agricultural University, Beijing, Asian China, People's Republic of (Presenter: Peng Zhou) (Peng Zhou, Wei, Zhou, Peng Yang, Minzan Li, Lihua Zheng)
22	1801176	Discussion on Application and Development Trends of Sensors in Agriculture Jin Wang, China Agriculture University, Beijing China, People's Republic of (Presenter: Wang Jin) (Liu Sha, Wang Xin)
23	1800664	Environment Awareness of Unmanned Agricultural Ground Vehicles (UAGVs) in Row Crop Production Caleb Lindhorst, University of Nebraska, Lincoln, Nebraska United States (Presenter: Caleb Lindhorst) (Caleb Lindhorst)
24	1800482	Establishment of Nozzle Atomization Model for Forest Barrier Treatment Feng Kang, Beijing Forestry University, Beijing China, People's Republic of (Presenter: Feng Kang) (Feng Kang, Yongjun Zheng, Wenbin Li, Yaxiong Wang)

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TUESDAY, JULY 31

25	1801508	Evaluation of Capacitance Probes for Measuring Soil Moisture for Raised-bed Plasticulture Chambal Pandey, University of Central Florida, Orlando, Florida United States (Presenter: Chambal Pandey) (Chambal Pandey, Sanjay Shukla)	38	1800283	Open-source cloud-connected monitoring: don't go to the field, have the data come to you Daniel Fisher, USDA-ARS, United States (Presenter: Daniel Fisher) (Daniel Fisher)
26	1800657	Feasibility study for the detection of soil nitrogen based on the infrared near-field telemetry technology Leizi Jiao, China, People's Republic of (Presenter: Leizi Jiao) (Leizi Jiao, Feng Bao, Daming Dong, Xiande Zhao)	39	1800470	Optimal wavelength selection for hyperspectral imaging evaluation of vegetable soybean quality parameters during drying Min Huang, Jiangnan University, Wuxi, Jiangsu China, People's Republic of (Presenter: Min Huang) (Peng Yu, Min Huang, Qibing Zhu, Ya Guo)
27	1800837	Feed Rate Prediction Model Based on Grey Relational Analysis Yanxin Yin, NERCITA, Beijing, China, People's Republic of (Presenter: Yanxin Yin) (Yanxin Yin)	40	1800253	Predicting Reservoir Failure through the Measurement of Surface Ground Deformations Yongseong KIM, Kangwon National University, Chuncheon, Gangwondo Korea, South (Presenter: Yong-Seong Kim) (Yong-Seong Kim, Bum-Joo Kim)
28	1800469	Peduncle detection of sweet pepper based on color and 3D feature Min Huang, Jiangnan University, Wuxi, Jiangsu China, People's Republic of (Presenter: Min Huang) (Hao Li, Min Huang, Qibing Zhu, Ya Guo)	41	1801748	Prediction model for Volatility of Agricultural Product Price using System Dynamics Byungjun Lee, Chungbuk National University, Cheongju, Chungcheongbuk-do Korea, South (Presenter: Byungjun Lee) (Jinseon Park, Byungjun Lee, Jeongbae Jeon, Seongsoo Yoon)
29	1800229	Fruit Detection of Strawberry Harvesting Robot Based on Optimized Faster RCNN Yang Yu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yang Yu) (Yang Yu)	42	1800444	Preliminary study on fresh - cut fruit quality detection based on spectroscopy hong sun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hong Sun) (Yuanyuan Liang, Tong Wu, Nan Tian, Hong Sun, Minzan Li, Fangyu Tang)
30	1800628	Generating Product Traceability Trees for Harvesting from GPS Tracks Yaguang Zhang, Purdue University, West Lafayette, Indiana United States (Presenter: Yaguang Zhang) (Yaguang Zhang, Andrew Balmos, Aaron Ault, Dennis Buckmaster, James Krogmeier)	43	1800053	Remote Measurement and Control System of Pig-gery Environment Based on LoRa Liu Xingqiao, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Liu Xingqiao) (Liu Xingqiao, Huo Caihong)
31	1801348	Investigating the distribution of digital yield mapping errors using optimal estimation algorithms based on state space models Andrew Balmos, Purdue University, West Lafayette, Indiana United States (Presenter: Andrew Balmos) (Andrew Balmos, Yang Wang, James Krogmeier, Dennis Buckmaster)	44	1800750	Remote Monitoring System for Plant Growing Environment Yu Chen, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yu Chen) (Zhuangzhuang He, Guanjie Hao, Yu Chen)
32	1801030	Kiwi fruit yield estimation using image processing by an Android mobile phone longsheng fu, Northwest A&F University, Yangling, Shannxi China, People's Republic of (Presenter: Longsheng Fu) (Zhihao Liu, Yali Feng, Haidong Zhao, Longsheng Fu)	45	1800811	Research of dynamic path planning of feeding-pushing robot based on A Star algorithm Li Shixiong, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Lv Haotun, Chen Xiaoxi, Wu Gang, Li Shixiong, Zheng Yongjun)
33	1800492	Laser Induced Breakdown Spectroscopy Applied to Fast Determination of Soil Composition Xiande Zhao, NERCITA, Beijing, China, People's Republic of (Presenter: Xiande Zhao) (Xiande Zhao, Chunjiang, Wengang Zhao, Zheng, Daming Dong, Leizi Jiao)	46	1800774	Research of Path Planning for Robot Control System in Greenhouse Liu Xingxing, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Liu Xingxing, Xu Yuzhou, Zhang Ran, Tian Fang, Li Shixiong, Tan Yu)
34	1800842	Multi-cluster kiwifruit image recognition using convolutional neural networks longsheng fu, Northwest A&F University, Yangling, Shannxi China, People's Republic of (Presenter: Longsheng Fu) (Yali Feng, Zhihao Liu, Haidong Zhao, Zhenzhen Song)	47	1800745	Research on Maize Precision Fertilization Baosheng Li, United States (Presenter: Li Shixiong) (Wu Gang, Zhang Lai, Li Shixiong, Liu Xingxing, Zheng Yongjun, Tan Yu)
35	1800903	Non-destructive analysis of fruit absorption coefficient using SRS Nikolaos Tsoulias, Leibniz Institute-ATB, Potsdam, Brandenburg Germany (Presenter: Nikolaos Tsoulias) (Manuela Zude-Sasse, Nikolaos Tsoulias, Christian Regen)	48	1801019	Research on Remote Accumulated Temperature Parameter Monitoring System Based on Wireless Sensor Net Yu Wang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yu Wang) (Yu Wang, Xin Wang, Meng Zhang, Yong Liu, Yuxiang Wang)
36	1801022	Nondestructive egg freshness assessment of air chamber diameter by VIS-NIR spectroscopy Yanlei Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yanlei Li) (Xiaoguang Dong, Xiuying Tang, Jun Dong, Zhixiong Shen, Yanlei Li, Yankun Peng, Yongyu Li)	49	1800733	Research on the Method of Auto-recharging of a Forage-pushing Robot Based on Fuzzy Control Liu Xingxing, China Agricultural University, Beijing, China, People's Republic of (Presenter: Li Shixiong) (Liu Xingxing, Zhou Guangqi, Yang Liu, Li Shixiong, Wu Gang, Zheng Yongjun)
37	1801432	Nondestructive measurement of plant diameter and rind thickness Daniel Robertson, United States (Presenter: Daniel Robertson) (Kyler Meehan, Levan Asatiani, Drew Owens, Spencer Hauck, Justin Nesbit, Joshua Warnick, Douglas Cook, Daniel Robertson)	50	1801183	Research Progress in COD Polishing Process Oil-field Wastewater by Electrochemical Technology Hengzhi Zhang, BISTU, Beijing, China, People's Republic of (Presenter: Hengzhi Zhang) (Hengzhi Zhang, Wenshen Jia, Jie Ma)
			51	1800471	Agricultural greenhouse data processing based on Kalman filter Qibing Zhu, Jiangnan University, Wuxi, Jiangsu China, People's Republic of (Presenter: Xunsheng Ji) (Xunsheng Ji, Simeng He, Qibing Zhu)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

52	1800342	Research on The Control System And Process Parameters of Fused Deposition Modeling 3D Printer Tengfei Li, Beijing City University, Beijing China, People's Republic of (Presenter: Hongying Wang) (Tengfei Li, Yang Gao, Lijuan He, Yanhua Bian, Jixiang Liang, Yitong Shang, Xin Zhao, Lin Wang, Hongying Wang)			
53	1801169	The Application of electronic nose technology in fruits and vegetables Detection Hengzhi Zhang, BISTU, Beijing, China, People's Republic of (Presenter: Hengzhi Zhang) (Xin Liu, Wenshen Jia, Guangquan Chen, Sizhe Zhang, Jie Zhang, Hengzhi Zhang Aijin Ma)	66	1801054	Tomato and peduncle automatic detection in 3D scene based on the fusion of multiple features Yongting Tao, United States (Presenter: Yongting Tao) (Jun Zhou, Kai Wang, Wenlong Shen)
54	1800747	The Research and Experiment on Corn Combine Harvester's Auto-follow Row System Based on Laser Radar and Limit Switch Yong Hu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Kailiang Zhang) (Yong Hu, Kailiang Zhang, Liming Xu)	67	1801055	Rapid detection of fruits in orchard scene based on deep neural network Yongting Tao, United States (Presenter: Yongting Tao) (Jun Zhou, Kai Wang, Wenlong Shen)
55	1801528	Using photogrammetry to estimate the quality and yield of a growing alfalfa stand Joseph Dvorak, University of Kentucky, Lexington, Kentucky United States (Presenter: Joseph Dvorak) (Joseph Dvorak, Luis Pampolini, Josh Jackson, Hasan Seyyedhasani, Ben Goff)	68	1801843	Optimal Control of free-floating Autonomous Underwater Vehicles for Manipulation Tasks in Shallow Sea Culture Collection Daoliang Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Daoliang Li) (Daoliang Li, Ling Du, Jianhua Bao, Thomas Rauschenbach, Pu Li, Divas Karimanzira)
56	1801135	Glyphosate-resistant weed discrimination based on decision tree analysis of plant canopy spectral data Alimohammad Shirzadifar, NDSU, Fargo, ND United States (Presenter: Alimohammad Shirzadifar) (Alimohammad Shirzadifar, Sreekala Bajwa, Seyed Ashmad Mireei, Nazanin Rajabpour, Kirk Howatt, Mike Ostlie, John Nowatzki)	69	1800559	An Optimal Milk Production Model Selection and Configuration System for Dairy Cows Michael Murphy, Cork Institute of Technology, Cork, Co. Cork Ireland (Presenter: Michael D. Murphy) (Michael Murphy, Fan Zhang, Philip Shine, John Upton)
57	1800125	Responses of tea leaf's microstructure and ultra-structure to low temperature stress in indicating critical cold temperature Yongzong Lu, University of California, Davis, California United States (Presenter: Yongzong Lu) (Yongzong Lu, Yongguang Hu, Richard L. Synder)	70	1800104	Identification of adulterated beef based on near-infrared hyperspectral imaging technique Yan Li, China Agriculture University, Beijing, China, People's Republic of (Presenter: Li Yan) (Yankun Peng, Xiaochun Zheng, Yan Li)
58	1800202	A review of key technologies of micro multi-rotor UAV (mUAV) based Sprayer System and it current advances Yawei Zhang, China Agriculture University, Beijing, China, People's Republic of (Presenter: Yawei Zhang) (Yawei Zhang, Dong Sun, Xindong Ni, Du Chen, Shumao Wang, Ling Wang)	71	1801847	Machine vision for size-based sorting of two Exported Egyptian potato cultivates Ahmed Rady, Alexandria University, Alexandria, Egypt (Presenter: Ahmed M Rady) (Nabil Badawi, Nervana Helmy, Omnia Alhaze, Hager Arab, Sarah Habib, Rewan Elawashy, Eman Shawesh, Khlood Shehata)
59	1800225	The Application and Prospect of Agricultural UAV's Obstacle Avoidance Technology in China Yali Zhang, South China Agricultural University, Guangzhou, Guangdong China, People's Republic of (Presenter: Yali Zhang) (Yubin Lan, LinLin Wang, Yali Zhang)	72	1800103	Development of Machine Hand for Apple Quality Sorting Yan Li, China Agriculture University, Beijing, China, People's Republic of (Presenter: Li Yan) (Yankun Peng, Li Yan)
60	1800150	A Model to Determine Injection Position in Grass Carp Based on Machine Vision Dongdong Li, Zhejiang University, Hangzhou, Zhejiang province China, People's Republic of (Presenter: Dongdong Li) (Dongdong Li, Jianping Li)	73	1800106	Nondestructive detection of mango internal damage based on near infrared spectroscopy Long Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yankun Peng) (Long Li, Yongyu Li, Yankun Peng)
61	1800016	New Type Arduino Plant Grower (GCKJ) Paul Oppong Kwabena, Jiangsu University, Zhenjiang, Jiangsu Province China, People's Republic of (Presenter: Oppong Paul Kwabena) (Hanping Mao, Lin Li)	74	1800102	A detection method of mixed pesticide content on/in apples via Raman spectrum Yan Li, China Agriculture University, Beijing, China, People's Republic of (Presenter: Li Yan) (Yankun Peng)
62	1800714	Interaction effects of photoperiod and nitrogen concentration on growth and photosynthetic characteristics of tomato. Minzan Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Minzan Li) (Minzan Li, Xinying Liu, Jian Yin, Man Zhang, Han Li)	75	1801056	Phenotypic analysis of fruit crops by water stress – Focused on thermal image analysis Ah Yeong Lee, Seoul National University, Seoul, Korea, South (Presenter: Suk Ju Hong) (Ah-Yeong Lee, Yun-Hyeok Han, Seok Kyu Yun, Minyoung Kim, Ghiseok Kim)
63	1801824	Using UAV for Tomato Phenotyping and Determination of Optimum Fertilization Program Juan Enciso, Texas A&M University, Weslaco, Texas United States (Presenter: Juan Enciso) (Juan Enciso)	76	1800969	Development of A low-cost Spectrometer Sensor for a Disease Detection Robot Arash Toudeshki, University of California, Merced, CA United States (Presenter: Arash Toudeshki) (Arash Toudeshki, Reza Ehsani, Sinem Gozde Defterli, Yunjun Xu)
64	1801827	Data Visualization for Smart Farming using Mobile Application Hasan Kahtan, Malaysia (Presenter: Firas Salim Al-Aani) (Firas Salim Al-Aani, Mathew Darr, Hasan Kahtan, Sivapriyan Kummur)	77	1800474	Maize plant water stress detection based on RGB image and thermal infrared image Han Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Han Li) (Li Han, Muhammad Hammad Malik, Yang Gao, Ruicheng Qiu, Yanlong Miao, Zhang Man)
65	1800477	Fluid-structure Interaction of Maize Straw under			

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TUESDAY, JULY 31

78	1800912	Autonomous guidance for rice transplanter fusion of machine vision and global positioning system Shuqin Zhou, Hangzhou Vocational & Technical College, Hangzhou, Zhejiang China, People's Republic of (Presenter: Jiangfeng Zhou) (Shuqin Zhou, Hufeng Shi, Liufen Guo, Weigang Guo, Hailong Jin, Jianfeng Zhou)
79	1800354	Corn Seeding Monitoring System Based on Image Processing Baosheng Li, United States (Presenter: Li Shixiong) (Li Baosheng, Liu Xingxing, Zhang Tong, Tian Fang, Tan Yu, Li Shixiong)
80	1800754	A novel electronic nose for meat quality testing Wenshen Jia, ATFM, Beijing, China, People's Republic of (Presenter: Wenshen Jia) (Wenshen, Sizhe Zhang, Ping Han, Jihua Wang, Jie Ma)
81	1800711	111 Yunlong Wei, FuZhou University, Fuzhou, Fujian China, People's Republic of (Presenter: Yunlong Wei) (Yunlong Wei)

4:30PM	1801732	Prescription development for variable rate soybean seeding using the Directed Rx system Kendall Kirk, Clemson University, Blackville, SC United States (Presenter: Kendall Kirk) (Kendall Kirk, Hollens Free)
4:45PM	1801020	Research on plant factory wind energy capture power system based on piezoelectric effect Yao Ze, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yao Ze) (Yao Ze, Xingang, Xindong Ni, Mengchao Zhang, Shumao Wang)

Tuesday, July 31 - 2:30PM-5:00PM SESSION 247

INNOVATIONS IN PRECISION

AGRICULTURE – Sponsored by MS-54, MS-23/6

Moderator: Dharmendra Saraswat, Purdue University, West Lafayette, IN

LOCATION: 140G

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800631	A novel chlorophyll fluorescence sensor for real-time herbicide effect monitoring Pei Wang, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Pei Wang) (Pei Wang, Hui Li, Roland Gerhards)
2:50PM	1800398	Automated Grain Yield Monitor Calibration with Active Yield Robert McNaull, Iowa State University, Ames, Iowa United States (Presenter: Robert McNaull) (Robert McNaull, McNaull)
3:05PM	1800992	Design and development of a particle flow yield monitor for combine harvesters Jason Schuster, John Deere, Waterloo, IA United States (Presenter: Jason Schuster) (Jason N. Schuster, Matthew J. Darr, Robert P. McNaull, Aaron J. Bruns, Zachary A. Pezzementi)
3:20PM	1801363	Development of an accurate and low-cost positioning system for overhead irrigation machines Ali M Nafchi, Clemson University, Clemson, SC United States (Presenter: Ali M Nafchi) (Ali M Nafchi, Jose Payero, Rebeca Davis, Ahmad Khalilian)
3:35PM	1801408	Does hulling extra-large confection sunflower seeds and coating the kernels improve seed plantability, stand establishment, and crop performance? Harjot Sidhu, North Dakota State University, Fargo, ND United States (Presenter: Harjot Sidhu) (Harjot Sidhu, Ewumbua Monono, Dennis Wiesenborn, Burton Johnson, Eric Eriksmoen)
3:50PM		BREAK
4:00PM	1801088	Low flow chemical metering and injection system Joseph Rounsaville, University of Kentucky, Lexington, Kentucky United States (Presenter: Joseph Rounsaville) (Joseph Applicant Timothy Rounsaville)
4:15PM	1800551	Mass of droplet deposition measurement system based on wireless Peng Zhou, China Agricultural University, Beijing, Asian China, People's Republic of (Presenter: Peng Zhou) (Peng Zhou, peng, Applicant 3: Wei Zhou, Applicant 3: Yang, Minzan Li, Lihua Zheng)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 248

CROP AND SOIL SENSING - PART 2

– Sponsored by MS-54, MS-45

Moderator: Lav Khot, Washington State University, Pullman, WA

LOCATION: 142B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800941	Multiple-depth soil electrical conductivity sensors for estimating layered soil properties Kenneth Sudduth, USDA-ARS, Columbia, MO United States (Presenter: Kenneth Sudduth) (Kenneth Sudduth, Newell Kitchen, Scott Drummond, Earl Vories, Kristen Veum)
2:50PM	1801503	Smartphone Measuring Chlorophyll Content from Plant Leaves Ojun Kwon, Kyungpook National University, Bukgu, Daegu Korea, South (Presenter: Ojun Kwon) (Ojun Kwon, Tusan Park)
3:05PM	1801332	Soil physical properties and crop-growth stage evaluation from construction activities Mehari Tekeste, Iowa State University, Ames, Iowa United States (Presenter: Mehari Tekeste) (Mehari Tekeste)
3:20PM	1800545	UAS-based remote sensing for assessing crop health and variability in cover crop integrated soybean fields Peter Larbi, Arkansas State University, Jonesboro, AR United States (Presenter: Peter Larbi) (Peter Larbi, John Rupe)
3:35PM		BREAK
3:45PM	1800860	Wireless Sensor Network for Passive in situ Measurement of Soil CO2 Gas Emissions Mohamed Debbagh, McGill University, Montreal, Quebec Canada (Presenter: Mohamed Debbagh) (Mohamed Debbagh, Ali Mawof, Viacheslav Adamchuk, Shiv Prasher, Chandra Madramootoo, Joann Whalen)
4:00PM	1800200	Soil moisture and temperature variation under post-sowing packing during growing season of North China Plain winter wheat Caiyun Lu, China Agricultural University, Beijing, China, People's Republic of (Presenter: Lu Caiyun) (Lu Caiyun, Li Hongwen, He Jin, Wang Qingjie, Meng Zhijun, Li Liwei)
4:15PM	1800550	Soil Total Nitrogen Content Prediction Based on Mutual Information Ant Colony Algorithm-Extreme Learning Machine Peng Zhou, China Agricultural University, Beijing, Asian China, People's Republic of (Presenter: Peng Zhou) (Peng Zhou, Wei Yang, Junyi Zhang, Minzan Li, Xiangqian Yao)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 249

ENGINEERING TECHNOLOGIES FOR FRUIT, VEGETABLES, AND OTHER SPECIALTY CROPS - PART 2

– Sponsored by MS-48, ITSC-353
Moderator: Long He, Penn State University, University Park, PA

LOCATION: 331A

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801263	Improving and Testing Methods of Securing Row Cover for Organic Cucurbit Production Jennifer Widmer, Iowa State University, Ames, IA United States (Presenter: Jennifer Widmer) (Jennifer Widmer, Mark Hanna, Brian Steward, Kurt Rosentrater)
2:50PM	1801485	Perspectives of Smallholder Farmers in Relation to Advancing Cacao Farming Technology in East Luwu, Indonesia Cininta Pertiwi, University of California, Merced, Merced, California United States (Presenter: Cininta Pertiwi) (Cininta Pertiwi, Reza Ehsani, Keith Ingram)
3:05PM	1801481	Design and Construction of a Pneumatic Harvesting and Cleaning Machine for Jojoba Seeds Mahmoud Elemam, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Mahmoud Ahmed Elemam Mohamed Abouasy) (Saad F. Ahmed, Shi W. Dong, Mohamed A. Sabbah, Soliman Nasif, Ling Zhou)
3:20PM	1800408	Design and development of modular device for pemelo grading Jie Liu, Huazhong Agricultural University, Wuhan, Hubei China, People's Republic of (Presenter: Jie Liu) (Liu Jianxiang, Yang Xiaoju, Xie Hang, Gao Guangyin, Liu Jie)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 250

PESTICIDE FORMULATION APPLICATION TECHNOLOGY, ENVIRONMENTAL EFFECTS - PART 2

– Sponsored by MS-23/6, MS-54
Moderator: Adam Barlow, John Deere Des Moines Works, Arkeny, IA

LOCATION: 142C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800066	Recovery rates of fluorescent dye on screens and plates as spray deposition collectors Kyusuk You, United States Department of Agriculture, Wooster, OH United States (Presenter: Kyusuk You) (Heping Zhu, JohnPaul R. Abbott)
2:50PM	1801238	Evaluation of Ozone water spray treatments for fruit crop pest management Haitham Bahlol, Prosser, Washington United States (Presenter: Haitham Bahlol) (Haitham Bahlol, Gwen-Alyn Hoheisel, Matthew Grieshop, Lav Khot)
3:05PM	1800634	Droplets' evaporation and spread features on leaves with hairy, waxy and rough surface characters Pei Wang, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Pei Wang) (Pei Wang, Hui Li, Weidong Jia, Chen Gong, Lijun Qi)
3:20PM		BREAK
3:30PM	1801357	Development of a CFD model for Predicting spray drift from air-assisted sprayers Se-Woon Hong, Tho Ohio State University, Columbus, Ohio United States (Presenter: Xinjie Tong) (Se-Woon Hong, Xinjie Tong, Lingying Zhao, Heping Zhu)

3:45PM 1800179 **Detection of 3-D objects with a 2-D laser scanning sensor for greenhouse applications**
Tingting Yan, United States (Presenter: Tingting Yan) (Tingting Yan, Heping Zhu, Li Sun, Xiaochan Wang, Peter Ling)

4:00PM 1800515 **Re-envisioning agrichemical input delivery: Solid Set Delivery Systems for high density fruit production, Impacts on off-target deposition**
Matthew Grieshop, United States (Presenter: Mark Ledebuhr) (Matthew Grieshop, Jacob Emling)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 251

ADVANCES IN SOIL-PLANT-MACHINE DYNAMICS AND SYSTEMS SIMULATION

– Sponsored by MS-45

Moderator: Diogenes Antille, University of Southern Queensland, Toowoomba, QLD, Australia

LOCATION: 250A

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801315	Discrete Element Modeling of Cultivator Sweep-to-Soil Interaction Mehari Tekeste, Iowa State University, Ames, IA United States (Presenter: Mehari Tekeste) (Mehari Tekeste)
2:50PM	1801651	How to relate X-ray Computed Tomography derived porosities to physical soil porosity in a randomised 3x3 factorial traffic and tillage field experiment Paula Misiewicz, Harper Adams University, Newport, Shropshire United Kingdom (Presenter: Paula A. Misiewicz) (W.A.J. Millington, P.A. Misiewicz, D.R. White, E.T. Dickin, S.J. Mooney, R.J. Godwin)
3:05PM	1801326	Soil Compaction Evaluation from Land Activities on Construction Site Mehari Tekeste, Iowa State University, Ames, IA United States (Presenter: Mehari Tekeste) (Mehari Tekeste)
3:20PM	1801695	Soil stress state orientation at two locations beneath a tractor drive tire Thomas Way, USDA-ARS National Soil Dynamics Lab, Auburn, AL United States (Presenter: Thomas Way) (Chunxia Jiang, Thomas Way, Tadashi Kishimoto, Mehari Tekeste)
3:35PM	1801292	Yield Impacts of Large Central Fill Planters and Tractors on Pinch Rows Andrew Klopfenstein, The Ohio State University, Columbus, OH United States (Presenter: Andrew Klopfenstein) (Andrew Klopfenstein, Richard Colley III, Sami Khanal, John Fulton, Scott Shearer)
3:50PM		BREAK
4:00PM	1800302	Modeling the Stress Relaxation of Agricultural Soils in Borno State, Nigeria Eli Mamman, University of Maiduguri, Maiduguri, Borno Nigeria (Presenter: Eli Mamman) (J.O. Ohu)
4:15PM	1800300	The Influence of Soil Failure Angle on the Performance of a Model Chisel Furrower in a Vertisol Eli Mamman, University of Maiduguri, Maiduguri, Borno Nigeria (Presenter: Eli Mamman) (Eli Mamman)
4:30PM	1800389	Modeling Power-hop Phenomenon as Stick-slide Vibration for Developing Driving Simulator for Agricultural Tractor Masahisa Watanabe, Arakawa-ku, Tokyo Japan (Presenter: Masahisa Watanabe) (Masahisa Watanabe, Kenshi Sakai)
4:45PM	1801833	An investigation into the suitability of Tekscan pressure mapping system for determining soil pressure distribution resulting from agricultural tires Paula Misiewicz, Harper Adams University, Newport, Shropshire United Kingdom (Presenter: Paula Misiewicz) (Paula Misiewicz)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

5:00PM 1801834 **Effect of tire inflation pressure on soil properties and yield in a corn-soybean rotation for three tillage systems in the Midwestern United States**
Md Rayhan Shaheb, Harper Adams University, Edgemon, Newport, Shropshire United Kingdom (Presenter: Md Rayhan Shaheb) (Md Rayhan Shaheb, Tony E. Grift, Richard J. Godwin, Ed Dickin, David R. White, Paula A. Misiewicz)

Tuesday, July 31 - 2:30PM-5:00PM
SESSION 252 AUTONOMOUS VEHICLES AND SYSTEMS - PART 2 – Sponsored by MS-58, ITSC-318, ITSC-353
Moderator: TBA

LOCATION: 250C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800387	Computational model of braking energy recovery for electric vehicles Haiyan Zhang, Beijing Electric Vehicle Company, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Yunting Hui, Hengyi Liu, Haiyan Zhang, Yalei Wu, Yan Li, Zetian Fu, Decheng Wang)
2:50PM	1800217	An anti-noise path tracking proportion differentiation (PD) controller for tractors Meina Zhang, Jiangsu Academic of Agricultural Science, Nanjing, Jiangsu China, People's Republic of (Presenter: Meina Zhang) (Xiaolan Lv, Xiangze Lin, Wenqing Yin)
3:05PM	1800737	Obstacle Detection and Avoidance for Autonomous Combine Harvester Michihisa Iida, Yoto University, Kyoto, Japan (Presenter: Michihisa Iida) (Michihisa Iida, Ryo Asada, Yifan Zhang, Masahiko Suguri, Ryohei Masuda)
3:20PM	1800382	Computational model of electric vehicle charging time at low temperature haiyan zhang, Beijing electric vehicle company, Beijing, daxing district China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Yunting Hui, Hengyi Liu, Haiyan Zhang, Yalei Wu, Yan Li, Xinxing Li, Decheng Wang)
3:35PM		BREAK
3:45PM	1800247	Visual Information Requirements for Remotely Supervised Autonomous Agricultural Machines Uduak Edet, University of Manitoba, Winnipeg, Manitoba Canada (Presenter: Uduak Edet) (Danny D. Mann)
4:00PM	1801101	Challenges in modern automated Feeding Systems. Matthias Reger, Technical University of Munich, Munich, Bavaria Germany (Presenter: Heinz Bernhardt) (Johannes Friedrich, Sascha Worz, Jorn Stumpfenhausen, Anton Sieghart, Heinz Bernhardt)
4:15PM	1801526	How field and fleet complexity affect the outcomes of optimization procedures for automatic fleet routing Joseph Dvorak, University of Kentucky, Lexington, Kentucky United States (Presenter: Joseph Dvorak) (Joseph Dvorak, Hasan Seyyedhasani, Eric Roemmele)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 253 COMPLEXITY AND DYNAMICS IN COUPLED NATURAL AND HUMAN SYSTEMS – Sponsored by NRES-21

Moderator: Subhasis Giri, Rutgers University, New Brunswick, NJ; Veronika Vazhnik, Pennsylvania State University, State College, PA

LOCATION: 251C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800120	Coupling climate, land use, and sea level rise projections to identify threatened estuaries across the South Atlantic and Gulf Coasts Lise Montefiore, North Carolina State University, Raleigh, NC United States (Presenter: Lise Montefiore) (Lise Montefiore, Natalie Nelson)
2:50PM	1800447	How Robust is Your System Resilience? Rachata Muneeppeerakul, University of Florida, Gainesville, FL United States (Presenter: Rachata Muneeppeerakul) (Rachata Muneeppeerakul, Mehran Homayounfar, John M. Anderies)
3:05PM	1801755	Sustainable Agricultural Intensification in Tanzania: characterization and performance of systems at different spatial scales Geraldine Klarenberg, University of Florida, Gainesville, FL United States (Presenter: Geraldine Klarenberg) (Geraldine Klarenberg, Mark Musumba, Alice Alonso, Cheryl Palm)
3:20PM	1801756	Sustainable Agricultural Intensification in Tanzania: synergies and trade-offs between intensification, livelihoods and ecosystem services Geraldine Klarenberg, University of Florida, Gainesville, FL United States (Presenter: Geraldine Klarenberg) (Geraldine Klarenberg, Mark Musumba, Alice Alonso, Cheryl Palm)
3:35PM		BREAK
3:45PM	1800161	The Quantification of the Food Energy and Water Nexus and The Economic Evaluation Associated with Resource Consumption and Reduction within a Milk Processing Facility. Carly Rain Adams, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Carly Rain Adams) (Carly Rain Adams, Adams)
4:00PM	1801740	Estimating future crop yield and water demand in the Southeast of America for multiple-purpose water planning under changing climate Hai Nguyen, University of Missouri, Columbia, Missouri United States (Presenter: Hai Nguyen) (Hai Nguyen)
4:15PM	1800633	Seasonal dynamics of nitrate N at soil-water system from Chinese maize-wheat rotation systems Qingwen Zhang, China, People's Republic of (Presenter: Qingwen Zhang) (Qingwen Zhang)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 254

LEVERAGING BIG DATA AND COMPUTATIONAL TOOLS FOR TACKLING ENVIRONMENTAL PROBLEMS

– Sponsored by NRES-21, NRES-26, NRES-28
 Moderators: Natalie Nelson, North Carolina State University, Raleigh, NC; Lise Montefiore, North Carolina State University, Raleigh, NC

LOCATION: 252A

Time	Paper #	Title/Author
Introduction		
2:30PM		
2:35PM	1801472	Interactive Impacts of Climate Variability and Bio-fuel-Related Agricultural Land Use Change on Water Quantity and Quality Xixi Wang, United States (Presenter: Xixi Wang) (Xixi Wang, Xiaomin Yang, Sandeep Kumar, Eleazer Resurreccion)
2:50PM	1800138	An empirical model to simulate pothole inundation cycle in prairie pothole region Pawan Upadhyay, Iowa State University, Ames, Iowa United States (Presenter: Pawan Upadhyay) (Pawan Upadhyay, Amy Kaleita, Michelle Soupir)
3:05PM	1800624	Extracting governing equations from the behavior of complex systems Miles Medina, University of Florida, Gainesville, Florida United States (Presenter: Miles Medina) (Miles Medina, Ray Huffaker, James Jawitz)
3:20PM	1800156	Improving the spatial and temporal resolution of agricultural nutrient balances Mahmoud Sharara, University of Wisconsin-Madison, Madison, Wisconsin United States (Presenter: Mahmoud Sharara) (Mahmoud Sharara, Horacio Aguirre-Villegas, Rebecca Larson, Troy Runge)
3:35PM		BREAK
3:45PM	1800725	Model Output Statistics (MOS) Application in Soil Moisture Aperture Passive (SMAP) Data for Improving Data Accuracy to In-situ Data of South Korea Soonho Hwang, Seoul National University, Seoul, Seoul Korea, South (Presenter: Soonho Hwang) (Moon Seong Kang, Jeong Hoon Ryu)
4:00PM	1801825	A Statistical Machine Learning Approach to Guide Stormwater Management in North and South Carolina, USA Charles Stillwell, North Carolina State University, Raleigh, North Carolina United States (Presenter: Charles Stillwell) (Charles Stillwell)
4:15PM	1801823	A Novel GSA-MCDA Model Optimization Framework for Environmental Data Kathleen Vazquez, University of Florida, Gainesville, Florida United States (Presenter: Kathleen Vazquez) (Kathleen Vazquez)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 255

INNOVATIVE HYDROLOGY AND WATER QUALITY MONITORING AND ANALYSIS

– Sponsored by NRES-21, NRES-224, NRES-23, NRES-25, NRES-28
 Moderators: Debabrata Sahoo, Woolpert Inc., West Columbia, SC; Gurdeep Singh, The Climate Corp, St. Louis, MO

LOCATION: 252B

Time	Paper #	Title/Author
Introduction		
2:30PM		
2:35PM	1801671	Effect of Stream Restoration on Water Quality and Quantity in the Coastal Plain of North Carolina Francois Birgand, NC State University, Raleigh, NC United States (Presenter: Francois Birgand) (Cyrus Benlenky, Dani Winter, Chiao-Wen Lin, Sam Garvey, Francois Birgand)
2:50PM	1800756	Comparison of various comparison techniques to predict nitrate load in Maumee River Rajesh Kandel, University of Illinois, Champaign-Urbana, Illinois United States (Presenter: Rajesh Kandel) (Rabin Bhattacharai)
3:05PM	1800233	In-situ algal growth studies to assess algal response to enriched total phosphorous concentrations in a piedmont region Debabrata Sahoo, Woolpert Inc, Columbia, SC United States (Presenter: Debabrata Sahoo) (Debabrata Sahoo, Ben Hammond, Frances Ellerbe, James Riddle)
3:20PM	1800181	Methodologies for assessing and predicting water quality status for improved decision-making and management Valeria Mijares, Purdue University, West Lafayette, IN United States (Presenter: Valeria Mijares) (Valeria Mijares)
3:35PM		BREAK
3:45PM	1801701	Temporal stability of fecal indicator bacteria in a PA creek using Empirical Orthogonal Functions Eunmi Hong, USDA-ARS, Beltsville, MD United States (Presenter: Eunmi Hong) (Eunmi Hong, Yakov Pachepsky, Cary Coppock, Daniel Shelton)
4:00PM	1801693	Towards Multi-scale Tracking of Water Movement Across the Soil-Plant-Atmosphere Continuum Using Fiber Optics Temperature Sensing Chadi Sayde, North Carolina State University, Raleigh, NC United States (Presenter: Chadi Sayde) (Chadi Sayde, Rachel Taylor, Mahmoud Ebrahim)
4:15PM	1800884	Monitoring emerging contaminants in wastewater-impacted vernal pools using integrative and grab sampling techniques Heather Gall, The Pennsylvania State University, University Park, PA United States (Presenter: Kathryn Hayden) (Kathryn Hayden, Kyle Elkin, Heather Gall, Herschel Elliott, Jeremy Harper, Odette Mina, John Watson)
4:30PM	1800257	Identification of hydrologically homogeneous regions in the Solimões river basin in the Amazon region Demetrius Silva, Universidade Federal de Viçosa, Viçosa, Minas Gerais Brazil (Presenter: Clivia Dias Coelho) (Clivia Dias Coelho, Demetrius David da Silva, Naziano Pantoja Filizola Junior, Silvio Bueno Pereira, Michel Castro Moreira)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 256

BMPS AND WATER QUALITY: CONSERVATION SYSTEMS - PART 2

– Sponsored by NRES-22, NRES-225
Moderators: Margaret Gitau, Purdue University, West Lafayette, IN; Sushant Mehan, Purdue University, West Lafayette, IN

LOCATION: 334

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800948	Developing & Measuring Best Management Practices in a 50-acre Region Near Devil's Lake North Dakota Jaime Thissen, University of Illinois, Champaign, IL United States (Presenter: Jaime Thissen) (Jaime Thissen)
2:50PM	1800683	Evaluating Effectiveness of Constructed Wetlands for Pollutant Removal from Nursery and Greenhouse Runoff John McMaine, South Dakota State University, Brookings, South Dakota United States (Presenter: John McMaine) (John McMaine, Jason Vogel, Jason Belden, Mike Schnelle, Glenn Brown)
3:05PM	1801266	The Role of Woody Vegetation in Stormwater Volume Control and Treatment Performance in Dry Detention Basins Austin Wissler, North Carolina State University, Raleigh, North Carolina United States (Presenter: Austin Wissler) (Austin Wissler)
3:20PM	1800997	CoBAGNPS: A Toolbox to evaluate sediment loads from Water and Sediment Control Basin, WASCOPipe Risers and Blind Inlet (POSTER) Anand Gupta, University of Guelph, Guelph, Ontario Canada (Presenter: Anand Krishna Gupta) (Anand Gupta, Ramesh Rudra, Bahram Gharabaghi, Prasad Daggupati, Gary Parkin, Asim Biswas, Pradeep Goel)
3:35PM		BREAK
3:45PM	1800883	The effects of disproportionate load contributions on quantifying the sediment trapping efficiencies of vegetated filter strips Heather Gall, The Pennsylvania State University, University Park, PA United States (Presenter: Heather E. Gall) (Heather Gall, Daniel Schultz, Tamie Veith, Sarah Goslee, Alfonso Mejia, Ciaran Harman, Raj Cibin, Paul Patterson)
4:00PM	1800593	Development of WEPP-WQ model with multiple OFEs Lili Wang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Lili Wang) (Lili Wang)
4:15PM	1800213	Model integration approach in assessing the impacts of wetland restoration on sediment reduction Umesh Adhikari, Michigan State University, East Lansing, Michigan United States (Presenter: Umesh Adhikari) (Umesh Adhikari, Edwin Martinez-Martinez, A. Pouyan Nejadhashemi, Sean Woznicki, Subhasis Giri)
4:30PM	1801255	Mapping the Erosion-Prone Areas of Gully Creek Watershed Using Games Model Kishor Panjabi, University of Guelph, Guelph, Ontario Canada (Presenter: Kishor Panjabi) (Kishor Panjabi, Ramesh, Applicant 3: Pradeep Rudra, Applicant 3: Goel, Prasad Daggupati, Rituraj Shukla)
4:45PM	1800185	Evaluating the impact of Midwestern cropping systems on soil health using the Soil Management Assessment Framework Brian Dougherty, Iowa State University, Ames, Iowa United States (Presenter: Brian Dougherty) (Brian Dougherty, Dan Andersen, Antonio Mallarino, Michelle Soupir, Matt Helmers)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 257

EDGE-OF-FIELD BEST MANAGEMENT PRACTICES FOR AGRICULTURAL DRAINAGE SYSTEMS - PART 1

– Sponsored by NRES-23

Moderators: Lindsay Pease, USDA ARS, Columbus, OH, Natasha Bell, Clemson University, Clemson, SC

LOCATION: 331B

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801778	Efficacy of a paired bioreactor and phosphorus removal structure system in Ohio Lindsay Pease, USDA ARS, Columbus, OH United States (Presenter: Lindsay Pease) (Lindsay Pease, Kevin King, Chad Penn, Emily Duncan)
2:50PM	1800572	Application of conservation drainage practices such as Drainage Water Management and saturated buffers in eastern South Dakota. Abhinav Sharma, South Dakota State University, Brookings, South Dakota United States (Presenter: Abhinav Sharma) (Abhinav Sharma, Rachel McDaniel, Todd Trooien)
3:05PM	1801277	Evaluating the nitrate and phosphorus removal efficiency of a saturated buffer in Michigan Ehsan Ghane, Michigan State University, East Lansing, MI United States (Presenter: Ehsan Ghane) (Ehsan Ghane, Jason Piwarski, Sami Shokrana)
3:20PM	1801380	Performance of a saturated buffer in Illinois after one year of establishment Laura Christianson, University of Illinois, Urbana, Illinois United States (Presenter: Janith Chandrasoma) (Janith Chandrasoma, Laura Christianson, Paul Davidson, Richard Cooke, Reid Christianson)
3:35PM		BREAK
3:45PM	1801223	Performance of surface and subsurface flow constructed wetlands for nutrient and sediment removal from drained agricultural land and farm yard in Latvia Ainis Lagzdins, Latvia University of Agriculture, Jelgava, Latvia (Presenter: Ainis Lagzdins) (Ainis Lagzdins, Linda Grinberga)
4:00PM	1801730	Temporal Distribution of Soil Phosphorus Storage Capacity (SPSC) in Irrigation Drainage Tile and Seepage Irrigation Fields Hossein Ghoveisi, University of Florida, Gainesville, Florida United States (Presenter: Hossein Ghoveisi) (Hossein Ghoveisi, Mark W Clark)
4:15PM	1800695	Mitigating Tile Drainage Phosphorus using Phosphorus Sorbing Materials in a Continuous Flow Through Pilot System Shorma (Bianca) Bailey, University of Illinois Urbana-Champaign, Urbana, Illinois United States (Presenter: Shorma Bianca Bailey) (Bianca Bailey, Maria Chu, Richard Cooke, Ian Canjelo)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 258

ADVANCES IN IRRIGATION MANAGEMENT - PART 2 – Sponsored

by NRES-244, NRES-24, NRES-241, NRES-245
Moderator: Isaya Kisekka, University of California-Davis, Davis, CA

LOCATION: 337

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801765	Estimation of crop water use under deficit irrigation Thomas Trout, USDA-Agricultural Research Service, Fort Collins, CO United States (Presenter: Thomas Trout) (Thomas Trout)
2:50PM	1800971	Impact of Irrigation and Nitrogen Management Strategies on Sugarbeet Yield, Evapotranspiration and Crop Water productivity Vivek Sharma, University of Wyoming, Laramie, Wyoming United States (Presenter: Vivek Sharma) (Vivek Sharma)
3:05PM	1801133	Evaluation and refinement of irrigation algorithms in SWAT Yong Chen, Texas A&M University, Amarillo, Texas United States (Presenter: Yong Chen) (Yong Chen, Gary Marek, Thomas Marek, David Brauer, Raghavan Srinivasan, Prasanna Gowda, Qingwu Xue)
3:20PM	1800188	Development of an Artificial Neural Network Approach for Predicting Plant Water Status in Almonds Julie Meyers, University of California, Davis, Davis, CA United States (Presenter: Julie Meyers) (Julie Meyers, Isaya Kisekka, Shrinivasa Upadhyaya, Gabriela Michelon)
3:35PM	1800907	Performance of Irrigation Management Techniques Applied on Maize Catariny Aleman, Federal University of Viçosa, Viçosa, Minas Gerais Brazil (Presenter: Catariny Aleman) (Catariny Aleman, Aleman)
3:50PM		BREAK
4:00PM	1800906	Precise timing of crop coefficient for improved water use efficiency in apple fruit production Nikolaos Tsoulias, Leibniz Institute-ATB, Potsdam, Brandenburg Germany (Presenter: Nikolaos Tsoulias) (Nikolaos Tsoulias, Manuela Zude-Sasse)
4:15PM	1800375	Research on fine roots distribution of apple trees in water storage pit irrigation Xianghong Guo, Taiyuan University of Technology, Taiyuan, Shanxi China, People's Republic of (Presenter: Xianghong Guo) (Xianghong Guo)
4:30PM	1800659	Effects of growth stage and irrigation depth on alfalfa canopy water interception under low-pressure spray sprinkler Yunling Wang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yunling Wang) (Yunling Wang, Maona Li, Yangyang Meng, Haijun Yan)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 259

SUSTAINABILITY METRICS – CONCEPT, EVALUATION, AND ADVANCES – Sponsored by NRES-26,

ASE-16
Moderator: Yongping Yuan, USEPA, Research Triangle Park, NC

LOCATION: 338

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801758	The Nexus Approach: Managing Water, Soil, and Waste in the Context of Global Change – rethinking environmental resource management Matthew Germane, Environmental Consulting LLC, Hartland, Michigan United States (Presenter: Matthew Germane) (Matthew Germane, Hiroshan Hettiarachchi)
2:50PM	1801188	Sustainable Crop Nutrient Management Metrics Heidi Peterson, International Plant Nutrition Institute, Stillwater, Minnesota United States (Presenter: Heidi Peterson) (Heidi Peterson, Tom Bruulsema)
3:05PM	1801297	Decision tools for identifying areas for land conservation Anna Linhoss, Mississippi State University, MS State, Mississippi United States (Presenter: Anna Linhoss) (Anna Linhoss)
3:20PM	1800945	Energy and GHG emission analyses of corn production in Ohio Zhifang Cui, The Ohio State University, Wooster, Ohio United States (Presenter: Seyed Hashem Mousavi Avval) (Zhifang Cui, Seyed Hashem Mousavi Avval, Ajay Shah)
3:35PM	1801241	A Scoping Review of Urban Agriculture: Trends, Current Issues, and Future Research Ronald Smith, Purdue University, West Lafayette, Indiana United States (Presenter: Ronald J. Smith) (Robert M. Stwalley III)
3:50PM		BREAK
4:00PM	1800128	Assessment of policy conflict using systems thinking and a causal loop diagram: a case study of carbon footprint reduction in Irish dairy farms Nicholas Holden, University College Dublin, Dublin, Dublin Ireland (Presenter: Nicholas Holden) (Kirsty Patterson)
4:15PM	1800603	Life cycle assessments on environmental footprints of five representative finishing swine diets Zifei Liu, Kansas State University, Manhattan, Kansas United States (Presenter: Zifei Liu) (Zifei Liu, Ronaldo Maghirang)
4:30PM	1800439	Emergent Properties of Sustainability: Using Agroecosystem Indicators within Spatial and Temporal Frameworks Veronika Vazhnik, Pennsylvania State University, State College, Pennsylvania United States (Presenter: Veronika Vazhnik) (Veronika Vazhnik, Esther S. Parish, Virginia H. Dale, Keith L. Kline, Tom L. Richard)
4:45PM	1801720	Transforming Student Decision Making through Sustainability Index Methodological Principles Nathan Rice, University of Nebraska - Lincoln, Lincoln, NE United States (Presenter: Nathan Rice) (Nathan Rice, Ashu, Applicant 3: Jenny Guru, Applicant 3: Keshwani, Ryan Anderson, Crystal Powers)
5:00PM	1801600	Compact Bed Plasticulture: A Novel Adaption Strategy to Uncertain Environmental and Market Forces Kira Hansen, University of Florida, Immokalee, FL United States (Presenter: Kira Hansen) (Kira Hansen, Sanjay Shukla, Nathan Holt, Rajendra Sishodia, Gregory Hendricks)

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 31

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 260

MANURE NUTRIENTS, THE ENVIRONMENT, AND THE GREAT LAKES - INVITED SPEAKERS

– Sponsored by NRES-27

Moderators: Teng Teeh Lim, University of Missouri, Columbia, MO; Rick Koelsch, University of Nebraska-Lincoln, Lincoln, NE

LOCATION: 353

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801886	Michigan Agriculture Environmental Assurance Program Joe Kelpinski, Michigan Dept of Agriculture & Rural Dev, Lansing, Michigan United States
2:55PM	1801887	Winter Manure Applications: Management Practices and Environmental Impacts Steven Safferman/Jason Smith, Michigan State University Extension, Alma, Michigan United States
3:15PM	1801888	Regional Runoff Risk Decision Support Tools Shelby Burlew/Erica Rogers, Michigan State University Extension, Hillsdale, Michigan United States
3:35PM	1801889	Manure Sidedress of Corn Research Glen Arnold, Ohio State University, Findlay, Ohio United States
3:55PM	1801890	Edge of Field Monitoring Research in Ohio Lindsay Pease, Ohio State University, Columbus, Ohio United States
4:15PM	1801891	Ohio Manure and Fertilizer Regulations Pertaining to Lake Erie Basin Glen Arnold, Ohio State University Extension, Findlay, Ohio United States
4:35PM		PANEL DISCUSSION: Opportunities for Research/Extension to Improve Manure Nutrient Use, and Correlating Manure with Soil Properties and Environmental Benefits

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 261

ECOLOGICAL ENGINEERING EDUCATION: HOMEWORK PROBLEMS AND PROJECTS (MINI PRESENTATIONS) – Sponsored by

NRES-28

Moderator: Scott Osborn, University of Arkansas, Fayetteville, AR

LOCATION: 331C

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801907	Designing a Life Support System for a Fish Tank in Sophomore Design Studio Scott Osborn, United States (Presenter: Scott Osborn) (Scott Osborn)
2:50PM	1801906	How Unique is Ecological Engineering? Niroj Aryal, North Carolina A&T State University, Greensboro, NC United States (Presenter: Niroj Aryal) (Niroj Aryal)
3:05PM	1801908	Analysis of Oyster Aquaculture for Nutrient Removal and Ecosystem Services Steven Hall, NCSU BAE, Raleigh, NC United States (Presenter: Steven Hall) (Steven Hall)
3:20PM	1801910	Building an Ecological Engineer's Toolbox Using Stream Restoration Carmen Agouridis, University of Kentucky, Lexington, KY United States (Presenter: Carmen Agouridis) (Carmen Agouridis)
3:35PM		BREAK

3:45PM	1801744	Linked problems in watershed and lake management David Blersch, Auburn University, Auburn, AL United States (Presenter: David Blersch) (David Blersch)
4:00PM	1801746	Microcosm Redux: Developments on the balanced crayfish closed ecosystem project David Blersch, Auburn University, Auburn, AL United States (Presenter: David Blersch) (David Blersch)
4:15PM	1801443	Building independent research opportunities for undergraduates in Costa Rica in clean energy and water Dawn Reinhold, Michigan State University, East Lansing, MI United States (Presenter: Dawn Reinhold) (Dawn Reinhold, Wei Liao, Luke Reese, Dana Kirk)
4:30PM	1801909	Challenging Discipline Perceptions in Ecological Engineering using Interdisciplinary Team Design Projects Tiffany Messer, University of Nebraska - Lincoln, Lincoln, NE United States (Presenter: Tiffany L. Messer) (Tiffany Messer)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 262

LAKES, WETLANDS AND COASTAL SYSTEMS – Sponsored by NRES-28,

NRES-25

Moderator: Randall Etheridge, East Carolina University, Greenville, NC

LOCATION: 332

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801575	Pothole inundation simulation and investigating the influences of different land use practices on farmed potholes in the Des Moines Lobe using AnnAGNPS Pawan Upadhyay, United States (Presenter: Pawan Upadhyay) (Pawan Upadhyay, Amy Kaleita, Michelle Soupir)
2:50PM	1801281	Analyzing the impacts of a perched layer on wetland hydrology within the Coastal Plain of the Chesapeake Bay Watershed Sangchul Lee, United States (Presenter: Sangchul Lee) (S. Lee, G.W. McCarty, M.W. Lang, A.M. Sadeghi, C.W. Wallace, I.-Y. Yeo, G.E. Moglen)
3:05PM	1800186	The right Manning for the job: Development of a simplified landscape-scale hydrologic model of a managed wetland Ian Hahus, Univ. of Florida, Gainesville, FL United States (Presenter: Ian Hahus) (Ian Hahus, Rafael Munoz-Carpena, Kati Migliaccio, Matthew Cohen, David Kaplan, Gregory Kiker)
3:20PM	1801605	Enhancing Water Storage in the Drained Landscape of Everglades: Geophysical Drivers and Scale-up Angelica Engel, University of Florida, Gainesville, Florida United States (Presenter: Angelica Engel) (Angelica Engel, Sanjay Shukla)
3:35PM	1801197	Modifying the LTHIA model to assess the impact of NPS pollution on water quality in the Canadian Great Lakes basin TARANJOT SINGH BRAR, University of Guelph, Guelph, Ontario Canada (Presenter: Taranjot Singh Brar) (Taranjot Singh Brar, Prasad Daggupati, Ramesh Rudra, Nabil Allataifeh, Baljeet Kaur, Pradeep Goel)
3:50PM		BREAK
4:00PM	1800306	Optimal implementation of best management practices to improve agricultural hydrology and water quality Yaoze Liu, Purdue University, West Lafayette, Indiana United States (Presenter: Yaoze Liu) (Yaoze Liu, Bernard Engel, Paris Collingsworth, Bryan Pijanowski)

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TUESDAY, July 31

- 4:15PM 1800670 Nitrogen dynamics in waterfowl impoundments: Linking outlet concentrations to laboratory-based microbial activity**
Randall Etheridge, East Carolina University, Greenville, North Carolina United States (Presenter: Randall Etheridge) (Brian Hinckley, Randall Etheridge, Ariane Peralta)
- 4:30PM 1801441 Role of plants and volatile solids in clogging of vertical-flow constructed treatment wetlands**
Dawn Reinhold, Michigan State University, East Lansing, MI United States (Presenter: Dawn Reinhold) (Dawn Reinhold, Ronald Aguilar)

- 4:45PM 1800459 How certain are nutrient loading hotspots simulated by SWAT? A case study in the Western Lake Erie basin**
Margaret Kalcic, Ohio State University, Columbus, Ohio United States (Presenter: Margaret Kalcic) (Margaret Kalcic, Yu-Chen Wang, Jay Martin, Noel Aloysius, Anna Apostel, Haley Kujawa, Jeffrey Kast, Rebecca Muenich, Awoke Teshager, Donald Scavia, Chelsie Bholes, Tod Redder, Remegio Confesor, Tian Guo)
- 5:00PM 1800248 Evaluation of seasonal variability, impact of storm event and the attachment rate of E. coli on streambed sediment**
Sadia Salam, South Dakota State University, Brookings, SD United States (Presenter: Sadia Salam) (Sadia Salam, Salam)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 264

WATER QUALITY: HOT MOMENTS AND HOT SPOTS – Sponsored by

NRES-224
Moderators: Heather Gall, Pennsylvania State University, University Park, PA; Emily Campbell, Geosyntec Consultants, Lisle, IL

LOCATION: 335

- | Time | Paper # | Title/Author |
|---------------|----------------|---|
| 2:30PM | | Introduction |
| 2:35PM | 1801247 | Mitigating the Risk of Atrazine in Surface Waters Across Nebraska
Tiffany Messer, University of Nebraska - Lincoln, Lincoln, NE United States (Presenter: Tiffany L. Messer) (Tiffany Messer, Sam Hansen, Aaron Mittelstet) |
| 2:50PM | 1801447 | Hydrogeomorphological hot spots for erosion in the mid-atlantic region of USA
Tamie Veith, USDA-ARS, University Park, PA United States (Presenter: Tamie Veith) (Tamie Veith, Sarah Goslee, Heather Gall) |
| 3:05PM | 1801261 | Modification and Application of SWAT Model to Identify Critical Source Areas in Agricultural Watersheds in the Great Lakes Basin
Pradeep Goel, Ontario Ministry of the Environment, Etobicoke, Ontario Canada (Presenter: Ramesh Rudra) (Balew Mekonnen, Ramesh Rudra, Pradeep Goel, Prasad Daggupati) |
| 3:20PM | 1801431 | The Effects of Varying Management Practices and Hydroclimate Changes on Nitrogen Loads at Watershed-scale in the Northern High Plains
MANAS KHAN, University of Nebraska-Lincoln, Lincoln, Nebraska United States (Presenter: Manas Khan) (Manas Khan, Vishal Singh, Carly Zimmer, Francisco Munoz-Arriola) |
| 3:35PM | 1801224 | Mapping Variable Source Area for identification of Critical Source Areas to control Non-Point Source Pollution
Nabil Allataifeh, University of Guelph, Guelph, ON Canada (Presenter: Nabil Allataifeh) (Ramesh Rudra, Prasad Daggupati, Pradeep Goel) |
| 3:50PM | | BREAK |
| 4:00PM | 1800214 | How Clean is Clean Enough? Assessing Edge-of-Field Nutrient Runoff
Daren Harmel, USDA-ARS, Fort Collins, CO United States (Presenter: Daren Harmel) (Rehanon Pampell, April Leytem, Doug Smith, Rick Haney) |
| 4:15PM | 1800397 | WQIag—A Tool of Multiple Applications
Harbans Lal, USDA/NRCS, Portland, OR United States (Presenter: Harbans Lal) (Steve Hefner) |
| 4:30PM | 1800212 | Surface water hydrology and quality in farmed prairie potholes of the Des Moines Lobe in Iowa
Alexander Martin, Iowa State University, Ames, Iowa United States (Presenter: Alexander Martin) (Alexander Martin, Amy Kaleita, Michelle Soupir) |

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 265

FLOOD VS. DROUGHT: WATER AVAILABILITY AND WATERSHED MANAGEMENT – Sponsored by NRES-25,

NRES-22
Moderator: Sherry Hunt, USDA ARS, Stillwater, OK

LOCATION: 336

- | Time | Paper # | Title/Author |
|---------------|----------------|---|
| 2:30PM | | Introduction |
| 2:35PM | 1801885 | Performance Evaluation of NRCS-Assisted Watershed Dams in Texas
R Brian Wenberg, USDA Natural Resources Conservation Serv, Temple, Texas United States (Presenter: R Brian Wenberg) (R Brian Wenberg) |
| 3:05PM | 1800303 | Integrated Flood Risk Analysis and Management Methodologies of Asa River, Nigeria
Baker Tajudeen, National Centre for Agric. Mechanization, Ilorin, Kwara Nigeria (Presenter: Baker Tajudeen) (Baker Tajudeen) |
| 3:20PM | 1800835 | Do Uncertain Hydrologic Simulations Cause Variability in Decisions Arrived?
Vamsi Krishna Vema, Indian Institute of Technology Madras, Chennai, Tamil Nadu India (Presenter: Indrajeet Chaubey) (Vamsi Krishna Vema, KP Sudheer, Indrajeet Chaubey) |
| 3:35PM | 1800909 | Low-flow seasonality and effects on water availability along the river network
Ligia Serrano Pruski, Federal University of Vicosa, Vicosa, MG Brazil (Presenter: Ligia de Oliveira Serrano Pruski) (Fernando Falco Pruski, Alisson Carraro Borges, Rayssa Balieiro Ribeiro) |
| 3:50PM | | BREAK |
| 4:00PM | 1801897 | Water Availability in the Mid-South US: Challenges and Opportunities
Michele Reba, USDA-ARS, Jonesboro, AR United States (Presenter: Michele Reba) (Michele Reba, Joseph H. Massey, Arlene Adviento-Borbe) |
| 4:30PM | 1801344 | Analysis of PDSI and Vegetation Condition Index (VCI) and Their Links to Streamflow
Devon Bانداد, Kansas State University, Manhattan, Kansas United States (Presenter: Devon Ali Bانداد) (Vahid Rahmani) |
| 4:45PM | 1801141 | Spatial and temporal pattern analysis of drought characteristics in India during the past century
Sarmistha Singh, Purdue University, West Lafayette, Indiana United States (Presenter: Sarmistha Singh) (Sarmistha Singh) |

NO RECORDING of the participants' remarks or discussion is permitted. Pictures of any material shown here are not permitted.

TUESDAY, JULY 1

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 266

REUSING RAIN & WASTEWATER ON-SITE IN NON-IRRIGATION AG SETTING: OPPORTUNITIES & CHALLENGES

– Sponsored by NRES-262, ASE-16, ESH-04, NRES-03, NRES-28
Moderators: Anish Jantrania, Texas A&M University, College Station, TX; Gayle Baker, Maurer-Stultz Inc, Peoria IL

LOCATION: 333

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1800861	Non-Potable Water Treatment and Use at an Innovative Sustainability Education Facility Albert Robert, NCSU, Raleigh, NC United States (Presenter: A. R. Rubin) (S. L. Crawford, P.E., S. J. Frederick, NCLSS, Et., Will Alphin)
2:55PM	1801818	Reusing Treated Wastewater in a Decentralized Rural Indian Village Wilf Stefan, Clearford Water Systems Inc, Ottawa, ON Canada (Presenter: Wilf Stefan; Nidhi Shah) (Wilf Stefan, Gillian Dumencu, Yuxin Wang, Nidhi Shah)
3:15PM	1801817	Membrane Capacitive Deionization Applied for Horticulture Water Reuse Carlos Camero, Voltea Inc, Farmers Branch, Texas United States (Presenter: Carlos Camero) (Carlos Camero)
3:35PM		BREAK
3:45PM	1801819	Catalytic Ozonation of Household Graywater Praveen Kolar, North Carolina State University, Raleigh, North Carolina United States (Presenter: Praveen Kolar) (Praveen Kolar, John Classen)
4:05PM	1801390	Onsite Water Reuse for Increasing Harvested Rainwater Availability – A method to geographically locate education need Gabriele Bonaiti, Texas A&M University, College Station, United States (Presenter: Gabriele Bonaiti) (Gabriele Bonaiti, Ryan Gerlich, Anish Jantrania)
4:25PM	1800420	Onsite Water Reuse for Increasing Harvested Rainwater Availability – Hypothetical Case Study. Anish Jantrania, Texas A&M AgriLife Extension, Temple, Texas United States (Presenter: Anish Jantrania) (Anish Jantrania)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 267

PLANT, ANIMAL, AND FACILITY SYSTEMS (PAFS) DISTINGUISHED LECTURE SERIES - INVITED SPEAKERS

– Sponsored by PAFS-40, PAFS-07/1, PAFS-20, PAFS-20/4, PAFS-234, PAFS-30, PAFS-40/3/1, PAFS-50

Moderator: John Linhoss, Mississippi State University, Mississippi State, MS

LOCATION: 355

This session will host a series of invited presentations from Major Award Recipients, Fellow Inductees, and Superior Paper Award Winners from 2016. The format for this series differs from general technical session, providing invited speakers with the flexibility to deliver a presentation which highlights their views and vision of the past, present and/or future on a subject area relative to the PAFS Community and highlight the research and development of award winning research published with the *Transactions of ASABE* and *Applied Engineering in Agriculture*.

Time	Paper #	Title/Author
2:30PM		Introduction
2:35PM	1801911	Ag Eng. Consulting – Where we have been and where we might be going Jerry Wille, Ames, IA United States (Presenter: Jerry Wille) (Jerry Wille)
3:35PM	1801912	A UHF RFID System for Studying Individual Feeding and Nesting Behaviors of Group-Housed Laying Hens Yang Zhao, Mississippi State, MS United States (Presenter: Yang Zhao) (Yang Zhao)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 268

PROCESSING SYSTEMS POSTER SESSION

– Sponsored by PRS

Moderator: Lamin S. Kassama, Alabama A&M University, Normal AL

Location:

Paper #	Paper #	Title/Author
1	1801666	Application of hyperspectral imaging to measure tenderness of beef longissimus dorsi samples Colm O'Donnell, United States (Presenter: Colm O'donnell) (Eva Achata, Rachel Kelly, Carlos Esquerre, Amalia Scannell, Colm O'Donnell)
2	1800807	Evaluation of growth characteristics of a mixed culture of toxigenic fungi by Visible/Near-infrared hyperspectral imaging Xin Zhao, China, People's Republic of (Presenter: Xin Zhao) (Daniel Kimuli, Wei Wang, Hongzhe Jiang, Xin Zhao, Xuan Chu, Yi Yang, Beibei Jia)
3	1801415	Applications of the electromagnetic spectrum in the food industry Ramandeep Kaur Sandhu, University of Guelph, Guelph, Ontario Canada (Presenter: Ramandeep Kaur Sandhu) (Ramandeep Kaur Sandhu, Christopher M. Collier, Ashutosh Singh)
4	1801433	Applying thin-layer drying principles to evaluate and optimize solar drying of ginger Diana Ramirez, Purdue University, West Lafayette, Indiana United States (Presenter: Diana Ramirez) (Diana Ramirez, Klein Ileleji, Zusongying Zhao)
5	1800522	Attaining Higher S. zeamais Mortality and Maximum Grain Storage Capacity by the use of the Periodic Physical Disturbance Technique Bernard Darfour, Iowa State University, Ames, Iowa United States (Presenter: Bernard Darfour) (Bernard Darfour, Kurt A. Rosentrater)
6	1800585	Characterization of Sugarcane Bagasse with Focus on Bioenergy Production Maria Oliveira, Iowa State University, Ames, Iowa United States (Presenter: Maria Oliveira) (Maria Oliveira, Kurt Rosentrater)
7	1801614	Computational Fluid Dynamics Simulation of Pyrethrin Aerosol Deposition Fei Xyza Asuncion, Kansas State University, Manhattan, Kansas United States (Presenter: Fei Xyza B. Asuncion) (Fei Xyza Asuncion, Ronaldo Maghirang, Mark Casada, James Campbell, Frank Arthur, Dan Brabec, Kun Yan Zhu, Kris Schumacher)
8	1800743	Corn fermentation using Soy EAEP by-products Mingjun Ma, Iowa State University, Ames, IA United States (Presenter: Mingjun Ma) (Mingjun Ma)
9	1800815	Design and experimental research of shelling and sorting machine for fresh camellia oleifera fruit based on physical properties Jiang Li, Tsinghua University, Beijing, China, People's Republic of (Presenter: Jiang Li) (Hongzhe Jiang, Wei Wang, Bo Wang, Xuan Chu, Xin Zhao)

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TUESDAY, JULY 1

10	1801456	Determining kinetic parameter sensitivity for microbial inactivation experiments run under static environmental conditions Kaitlyn Casulli, Michigan State University, East Lansing, MI United States (Presenter: Kaitlyn Casulli) (Kaitlyn Casulli, Bradley Marks, Kirk Dolan)	22	1801453	Fortification of Low-Fat Yogurt with Beans Protein Isolate Prachi Pahariya, South Dakota State University, Brookings, South Dakota United States (Presenter: Prachi Pahariya) (Prachi Pahariya, Poonam Singha, Kasisviswanathan Muthukumarappan)
11	1801660	Development of a process analytical technology tools for casein manufacture Colm O'Donnell, University College Dublin, Belfield, Dublin Ireland (Presenter: Colm O'Donnell) (Bhavya Panikuttitra-Kuttappa, Norah O'Shea, John Tobin, Fred Payne, Colm O'Donnell)	23	1801724	High pressure treatment for tenderization of semi-membranosus and biceps femoris muscles from goat Akinbode Adedeji, University of Kentucky, Lexington, KY United States (Presenter: Akinbode Adedeji) (Mohammad Yarmand, Francis Agbali)
12	1801662	Development of artificial neural networks models to predict inactivation of Escherichia coli K 12 on chevon due to non-thermal hurdle technologies Ajit Mahapatra, Fort Valley State University, Fort Valley, Georgia United States (Presenter: Ajit Mahapatra) (Ramana Gosukonda, Ajit Mahapatra, Hema Degala, Govind Kannan)	24	1800808	Identification of moldy corn kernels using visible/near-infrared hyperspectral images Xin Zhao, China, People's Republic of (Presenter: Xin Zhao) (Xuan Chu, Wei Wang, Xin Zhao, Haitao Zheng, Daniel Kimuli, Hongzhe Jiang, Beibei Jia, YiYang)
13	1800385	Development of PUFA and Antioxidant Rich Healthy Frozen Dessert using Vegetable Oil Powder Mousumi Ghosh, IIT Kharagpur, Kharagpur, West Bengal India (Presenter: Mousumi Ghosh) (Mousumi Ghosh, Hari Mishra)	25	1800810	Research on Classification Method of Cotton Seeds on Machine Vision Hongzhe Jiang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongzhe Jiang) (Xiwei Bai, Wei Wang, Hongzhe Jiang, Xuan Chu, Xin Zhao, Bo Wang, Aijun Dong, Haodong Qin)
14	1801751	Dielectric properties of pork muscle (Biceps femoris) in the microwave range affected by the gender Anel Rosas-Hernández, Universidad de Guanajuato, Irapuato, Guanajuato Mexico (Presenter: Anel Rosas-Hernandez) (A. Rosas-Hernandez, T. Kaur Kataria, J.A. Gomez-Salazar, J.L. Olvera-Cervantes, A. Corona-Chavez, R. Rojas-Laguna, M.E. Sosa-Morales)	26	1800334	Inactivation of Salmonella Enteritidis on walnuts by pulsed UV treatment Ali Demirci, Pennsylvania State University, University Park, PA United States (Presenter: Ali Demirci) (Gulten Izmirliloglu, Ali Demirci)
15	1801272	Effect of Extrusion Processing Parameters on the Physical Properties of Proso Millet Based Snack Joseph Woomer, University of Kentucky, Lexington, Kentucky United States (Presenter: Joseph Woomer) (Joseph Woomer, Akinbode Adedeji)	27	1800902	Influence of sprouted wheat flour on starch and protein quality of bread made from phenolics rich cereals Sunil Manohar Behera, IIT Kharagpur, Kharagpur, West Bengal India (Presenter: Sunil Manohar Behera) (Sunil Manohar Behera, Prem Prakash Srivastav)
16	1801721	Effect of microwave heating on characteristics of semimembranosus and biceps femoris muscles from goat Akinbode Adedeji, University of Kentucky, Lexington, KY United States (Presenter: Akinbode Adedeji) (Mohammad Yarmand, Francis Agbali)	28	1800160	Measurement of thermal diffusivity of Wheat and Maize and comparison by Dickerson method Shirin Ghatrehsamani, University of Florida, Gainesville, FL United States (Presenter: Shirin Ghatrehsamani) (Shirin Ghatrehsamani, Yiannis Ampatzidis, Behzad Sadeghi, Sahar Ghatrehsamani)
17	1801000	Effect of Substrate Characteristics on Bacterial Growth and Sporulation of Two Biocontrol Microorganisms During Solid State Cultivation Ga Young (Sandra) Lee, i3L, Jakarta, Java Indonesia (Presenter: Lee Ga Young) (Lee Ga Young, Jian Shi)	29	1800411	Mechanism of inactivation of Saccharomyces cerevisiae by high-voltage cold atmospheric plasma. William Colonna, Iowa State University, Ames, Iowa United States (Presenter: William Colonna) (William Colonna, Zifan Wan, Kevin Keener, S.K. Pankaj)
18	1801137	Enrichment of Silicon in Rice Husk Ash Silica using Alcohol as a Washing Solution Puja Priyadarshini Nayak, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal India (Presenter: Puja Priyadarshini Nayak) (Puja Priyadarshini Nayak, Roshan Kumar Singh, Ashis Kumar Datta)	30	1801110	Methods for Surfacing Dentences in Urochloa Brizantha Seeds Nahyara Batista Caires Galle, Federal University of Mato Grosso, Rondonópolis, Mato Grosso Brazil (Presenter: Nahyara Batista Caires Galle) (Nahyara Batista Caires Galle, Niedja Marizze Cezar Alves, Thiago Aurelio de Arruda, Maria Isabel Postil da Silva, Amanda Mendes)
19	1801371	Estimating winter jujube properties based on hyperspectral image Rui Li, Northwest A&F University, Yangling, Xianyang, Shaanxi China, People's Republic of (Presenter: Rui Li) (Haidong Zhao, Zhihao Liu, Yali Feng, Hongzi Xie, Rui Li, Longsheng Fu)	31	1800826	Visible and near infrared hyperspectral imaging for non-destructive grading and classification of chicken breast fillets Beibei Jia, China Agricultural University, Beijing, China, People's Republic of (Presenter: Beibei Jia) (Beibei Jia, Wei Wang, Seung-Chul Yoon, Hong Zhuang, Yi Yang, Hongzhe Jiang)
20	1800332	Evaluating fungal co-production of cellulase and xylanase enzymes at shake-flask scale using distillers dried grain with solubles (DDGS) and its validation in benchtop fermenters Ali Demirci, Pennsylvania State University, University Park, PA United States (Presenter: Ali Demirci) (Deniz Cekmecelioglu, Ali Demirci)	32	1800658	Optimization of Brown Rice (Unpolished rice) Puffing Process in Microwave Oven Using Response Surface Methodology for Quality Characteristics Ajay Kumar Swarnakr, Indian Institute of Technology Kharagpur, Medinipur, West Bengal India (Presenter: Ajay Kumar Swarnakr) (Ajay Kumar Swarnakr, Susanta Kumar Das, Prem Prakash Srivastav)
21	1800976	Extract Production of Baru and Enriched with Fruit Pum Niedja Marizze Cezar Alves, Federal University of Mato Grosso, Rondonópolis, Mato Grosso Brazil (Presenter: Niedja Marizze Cezar Alves) (Niedja Marizze Cezar Alves, Nahyara Batista Caires Galle, Rayane Leticia de Oliveira Castro, Maria Isabel Postil da Silva, Thiago Aurelio de Arruda)	33	1801313	Performance evaluation of pneumatic conveying of wheat John Lawrence, Kansas State University, Salina, KS United States (Presenter: John Lawrence) (John Lawrence)

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TUESDAY, JULY 1

34	1801545	Physical properties of sericea lespedeza seeds as a function of moisture content Ajit Mahapatra, Fort Valley State University, Fort Valley, Georgia United States (Presenter: Ajit Mahapatra) (Ajit Mahapatra, Daniel Ekefre, Somashekhar Punnuri, Thomas Terrill)	44	1800519	Techno-economic analysis of food waste to liquid fuels Noor Intan Shafinas Muhammad, Iowa State University, Ames, Iowa United States (Presenter: Noor Intan Shafinas Muhammad) (Noor Intan Shafinas Muhammad, Kurt Rosentrater)
35	1800828	Prediction of quality traits of Chicken Breast Fillets by Different spectral range of Hyperspectral Imaging Beibei Jia, China Agricultural University, Beijing, China, People's Republic of (Presenter: Beibei Jia) (Yi Yang, Wei Wang, Seung-Chul Yoon, Hong Zhuang, Hongzhe Jiang, Beibei Jia)	45	1800819	The automation camellia oleifera shell-nut separation equipment based on belt conveyor Jiang Li, Tsinghua University, Beijing, China, People's Republic of (Presenter: Jiang Li) (Bo Wang, Wei Wang, Hongzhe Jiang, Xuan Chu, Xin Zhao, Xiwei Bai, Aijun Dong, Haodong Qin)
36	1800989	Production of Peanut Extract and Enriched with Fruit Pump Niedja Marizze Cezar Alves, Federal University of Mato Grosso, Rondonopolis, Mato Grosso Brazil (Presenter: Niedja Marizze Cezar Alves) (Niedja Marizze Cezar Alves, Rayane Leticia de Oliveira, Nahyara Batista Caires Galle, Thiago Aurelio de Arruda, Maria Isabel Postil da Silva)	46	1800320	The Differences of Mycotoxins Content and Physical Properties Between Healthy and Moldy Corn Kernels Nan Jin, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongying Wang) (Nan Jin, Tengfei Li, Hongying Wang, Dandan Kong, Peng Fang, Enze Duan, Menghu Zheng, Jiyuan Chen)
37	1800937	Quantitation of polyhydroxybutyrate production in alkaline pretreated liquor produced by corn stover alkaline pretreatment Mengxing Li, University of Nebraska-Lincoln, Lincoln, NE United States (Presenter: Mengxing Li) (Mengxing Li, Mark Wilkins)	47	1800438	Influence of moisture content on chosen engineering properties of alfalfa seed Qingyun Sun, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu ,Yan Li) (John Morris Togo kAJI , Decheng Wang, Wenpeng Ma, Yalei Wu, Yan Li)
38	1800804	Rapid and nondestructive quantification of cassava starch adulterants in potato starch by using hyperspectral imaging Xin Zhao, China Agricultural University, Beijing China, People's Republic of (Presenter: Xin Zhao) (Xin Zhao, Wei Wang, Xuan Chu, Hongzhe Jiang, Beibei Jia, Yi Yang, Daniel Kimuli, Haodong Qin,Aijun Dong)	48	1801689	In-vitro Digestibility, Structural Particulars and Physico-chemical Properties of Proso Millet Flour Proteins Felix Akharume, University of Kentucky, Lexington, Kentucky United States (Presenter: Felix Akharume) (Akinbode Adedeji, konstantin V. Korotkov)
39	1800809	Rapid Classification of Corn Varieties by Using Near Infrared Spectroscopy Hongzhe Jiang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongzhe Jiang) (Aijun Dong, Wei Wang, Xin Zhao, Xuan Chu, Bo Wang, Xiwei Bai, Haodong Qin ,Hongzhe Jiang, Beibei Jia, Yi Yang, Daniel Kimuli)	49	1801800	Characteristics, Gel Texture and Thermal Properties of Starch Extracts of Zambian Beans Varieties Ogan Mba, McGill University, Ste-Anne-de-Bellevue, Quebec Canada (Presenter: Ogan Mba) (Ogan Mba, Tosin Oludare, Ebenezer Kwofie, Michael Ngadi)
40	1800829	Research on the nondestructive detection of egg freshness based on image processing Beibei Jia, China Agricultural University, Beijing, China, People's Republic of (Presenter: Beibei Jia) (Haodong Qin, Wei Wang,Xuan Chu, Hongzhe Jiang, Xin Zhao, Beibei Jia, Yi Yang, Daniel Kimuli, Aijun Dong, Bo Wang, Xiwei Bai)	50	1801802	Rheological and Textural Properties of Rice Puddings Made from Heat-Moisture Treated Flours Chijioke Nwankpa, McGill University, Ste-Anne-de-Bellevue, Quebec Canada (Presenter: Chijioke Nwankpa) (Chijioke Nwankpa, Michael Ngadi)
41	1800134	Selection of processing temperature for a functional beverage with antihypertensive activity in order to preserve its proteomic profile Everardo Mares Mares, Universidad de Guanajuato, Irapuato, Mexico (Presenter: Everadro Mares Mares-Anel Rosas Hernandez) (E. Mares-Mares, N.Z. Ramirez-Rojas, F.L.M. Herrera-Castillo, S. Gutierrez-Vargas, M.C. Del Rincon-Castro, M.E. Sosa-Morales, M.F. Leon-Galvan)	51	1801815	Control Release Kinetics of PLGA Nanoparticles Loaded with Lycopene in the Gastrointestinal Tract Lamin Kassama, Alabama A&M University, Normal, Alabama United States (Presenter: Lamin Kassama) (Lamin Kassama, Jawadul Misir)
42	1800845	Smart Sensor for Determining Endpoint of Milk Coagulation Fred Payne, University of Kentucky, Lexington, Kentucky United States (Presenter: Fred Payne) (Fred Payne, Michael Sama)	52	1801283	Permeability of grain storage bags Michael Omodara, University of Kentucky, Lexington, Kentucky United States (Presenter: Michael Omodara) (Omodara, Michael A Omodara, Michael D. Montross, Samuel D. McNeill, Francis A Agbali, Aaron P. Turner)
43	1800057	The specific heat of mash feed for growing-finishing pigs as affected by moisture content, temperature and grinding particle size Dandan Kong, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongying Wang) (Dandan Kong, Nan Jin, Tengfei Li, Peng Fang, Enze Duan, Jiyuan Chen, Menghu Zheng, Hongying Wang)	53	1801821	Subcritical CO(2) Extraction of Flavor Compounds from Desi (Indigenous) Ghee J.K. Sahu, Indian Institute of Technology Delhi, New Delhi, India (Presenter: J.K. Sahu) (J.K. Sahu)
			54	1800067	Modeling of drying kinetics, thermodynamics and quality assessment of dried pineapple (Ananas comosus) under humidity controlled convective hot-air dryer. Frederick Sarpong, Jiangsu University, Zhenjiang, Jiangsu China, People's Republic of (Presenter: Frederick Sarpong) (Frederick Sarpong, Leticia Amenorfe, Cunshan Zhou)
			55	1801132	Prediction of Shrinkage and Color Changes of Apple Slices during Medium Short-wave Infrared Drying Xingyi Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Xingyi Li) (Li Xingyi, Liu Yanhong, Xue Lingyang, Zhu Guangfei, Gao Zhenjiang)

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TUESDAY, JULY 31

- 56 1801058 **Simulation of Heat and Moisture of In-Shell Peanuts in Aerated and Un-aerated Bulk Storage in the Tropics**
Jose Domingo Guzman, Cagayan State University, Tuguegarao City, Philippines (Presenter: Jose Domingo Guzman) (Jose Domingo Guzman)
- 57 1800785 **Stability and Shelf life determination of ready-to-eat (RTE) high energy food paste in different packaging materials**
Rakesh Kumar Raigar, IIT Kharagpur, Kharagpur, West Bengal India (Presenter: Rakesh Kumar Raigar) (Rakesh Kumar Raigar, H.N. Mishra)
- 58 1800782 **Computational modeling of mass transfer and optimization of process parameters during hybrid solar drying of paddy (var. Satabdi)**
Aprajeeta Jha, IIT, Kharagpur, Kharagpur, West medinipur, West Bengal India (Presenter: Aprajeeta Jha) (Aprajeeta Jha, Punyadarshini Tripathy)
- 59 1801227 **Thermal Properties of Gala Apple During the Growing Season**
Oznur Caliskan-Aydogan, The Pennsylvania State University, University Park, Pennsylvania United States (Presenter: Virendra M. Puri) (Oznur Caliskan-Aydogan, Hojae Yi, James R. Schupp, Daeun D. Choi, Paul H. Heinemann, Virendra M. Puri)
- 60 1800871 **Optimization of Lipo-chitooligosaccharides Production by Solid State Cultivation of Bradyrhizobium japonicum on Sweet Sorghum Bagasse**
Ryan Kalinoski, University of Kentucky, Lexington, Kentucky United States (Presenter: Ryan Kalinoski) (Ryan Kalinoski, Abby Olaleye, Jian Shi)
- 61 1801745 **A novel and sustainable approach for the synthesis of bio-plastics from CO2 and soybean oil**
Shaoqing Cui, Ohio State University, Wooster, Ohio United States (Presenter: Shaoqing Cui) (Shaoqing Cui)
- 62 1801822 **Polycyclic Aromatic Hydrocarbons (PAHs) in Smoked Foods**
Litha Sivanandan, West Virginia University, Morgantown, West Virginia United States (Presenter: Litha Sivanandan) (Litha Sivanandan)
- 63 1800576 **Economic comparison of biobutanol refining using low moisture anhydrous ammonia (LMAA) pretreatment and different downstream processing methods**
Nazira Mahmud, Iowa State University, Ames, IA United States (Presenter: Nazira Mahmud) (Nazira Mahmud, Kurt Rosentrater)
- 64 1801386 **Polyphenol oxidase inactivation and drying kinetics of lily petal by vacuum-steam pulsed blanching poster**
Jun Wang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Jun Wang) (Jun Wang)
- 65 1800760 **Structural Design and Experimental Analysis of Maize Threshing System**
Yanfeng Li, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yalei Wu, Yan Li) (Yanfeng Li, Zhiqin Wang, Decheng Wang, Kaili Han, Zhifei Gu, Chen Cai, Yalei Wu, Yan Li)
- 66 1801844 **Effects of hot air-assisted radio frequency heating on enzyme inactivation, lipid stability and product quality of rice bran**
Bo Ling, Northwest A&F University, Yangling, Shaanxi China, People's Republic of (Presenter: Bo Ling) (Bo Ling)
- 67 1801845 **Quantifying Grain Storage Structure Leakage by Testing Effects of Environmental Conditions on Pressure Loss**
Carol Jones, Oklahoma State University, Stillwater, OK United States (Presenter: Carol Jones) (Carol Jones, Taylor Conley)

- 68 1800142 **Rapid Detection of Potato Starch Based on Visible / Near Infrared Spectroscopy**
Fan Wang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Yankun Peng) (Fan Wang, Yongyu li, Yankun Peng, Long Li)
- 69 1800805 **Non-destructive assessment of cooking loss of fresh broiler breast fillets using shortwave infrared (SWIR) hyperspectral imaging**
Hongzhe Jiang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Hongzhe Jiang) (Hongzhe Jiang, Wei Wang, Hong Zhuang, Seungchul Yoon, Yi Yang, Beibei Jiang)
- 70 1800838 **Comparison of different pretreatments on the drying behavior of Poria cocos cubes**
Ping Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zusongying Zhao) (Zhian Zheng, Ping Zhang, Yuxin Zhang, Zusongying Zhao)
- 71 1800839 **Effects of different pretreatments on quality attributes of Poria cocos**
Ping Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zusongying Zhao) (Zhian Zheng, Ping Zhang, Yuxin Zhang, Zusongying Zhao)
- 72 1800841 **Evaluation of different pretreatments for Poria cocos**
Ping Zhang, China Agricultural University, Beijing, China, People's Republic of (Presenter: Zusongying Zhao) (Zhian Zheng, Ping Zhang, Jiao Wang, Yuxin Zhang, Zusongying Zhao)

Tuesday, July 31 - 2:30PM-5:00PM

SESSION 269 AOCABFE & NERCITA CHINA EXCHANGE FORUM – INVITED SPEAKERS – Sponsored by AOCABFE, NERCITA

Tuesday, July 31 – 2:30PM-5:00PM

Moderator: Hong Li, University of Delaware, Newark, DE

LOCATION: 356

Promoting and facilitating academic and research exchanges among scholars from China and other countries. Invited speakers will share their views and perspectives on international exchange in food, renewable and bio-energy, and climate change and environment protection.

2:30PM Smart Agriculture Research Programs and Current Status at Zhejiang University

Haiyan Cen, Professor, Zhejiang University, China

2:50PM Precision Profile Spraying Technique Based on Variable Air Volume and Chemical Flow Rate for Orchard in CCAT

Xiongkuai He, Professor, China Agricultural University, China

3:10PM Progress in Discipline Construction and Research of Agricultural Engineering at Jiangsu University

Hanping Mao, Professor, Jiangsu University, China

3:30PM BREAK

3:50PM TC

Xinlei Wang, Professor, University of Illinois, Urbana, IL
Agricultural Engineering Research at Jiangsu Academy of Agricultural Sciences and Collaboration Opportunities

Hong Li, Associate Professor, University of Delaware

International Collaboration for Improving Food Safety of Poultry Supply Chain in China
Yanbin Li, Distinguished Profession, University of Arkansas

4:10PM Question and Discussion

4:30PM

4:50PM

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